

CHESTERFIELD COUNTY

ECONOMIC ANALYSIS

2016

August 2017

Chesterfield County Planning Department



INTRODUCTION

The Chesterfield County Economic Analysis Report seeks to identify and analyze the various industries making up the County's economic base, offering a better understanding of local industrial composition and employment projections. These are important considerations when updating and amending the County's Comprehensive Plan.

The report primarily uses each industry's employment and wage data for analysis. The first section offers an overview of the county's industrial sectors, presenting emerging trends at the sector-level. The subsequent sections consist of a more detailed report for each sector.

The data used in this report is from the Virginia Labor Market Information, Quarterly Census of Employment and Wages (QCEW) for select 2nd Quarters. Some sectors were not included in the report due to non-disclosure of data and other reporting problems. The report focuses on private enterprises, thus, Public Administration numbers (businesses, employment and wages for federal, state and local entities) are excluded in the analysis. As additional data sets and figures become available, this report can be expanded, updated and made available for public reference. It can be used in conjunction with the Chesterfield County Business Report to render a better understanding of the County's economic dynamics. For more information on this and other reports prepared by the Planning Department, visit www.chesterfield.gov/plan.

This report relies on the North American Industry Classification System (NAICS) for industry data reporting. A list of abbreviations used throughout the report for the 2-digit sector-level industry names can be found in the Data Sources & Methodology section at the end of this report.

It utilizes a variety of economic analysis tools, including location quotient and shift-share analysis. A definition of each of these tools, as well as some of the limitations of each, is listed in the Data Sources & Methodology section at the end of this report.

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This 2016 report was prepared by County Volunteer Diane Faye Gapas.

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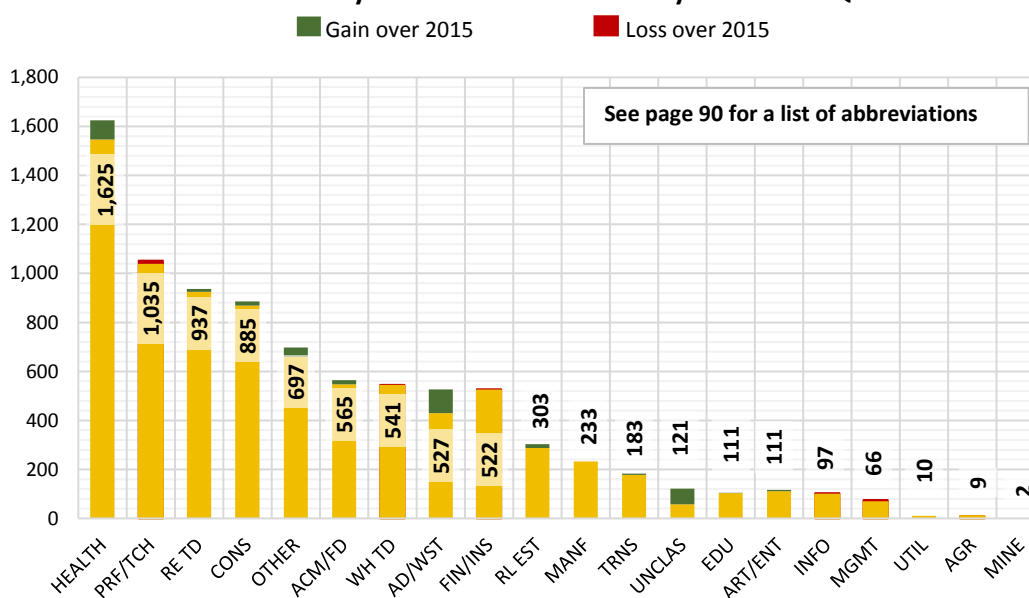
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COUNTYWIDE INDUSTRIAL OVERVIEW

Establishments Trends

Chesterfield County's economy is diverse. The county is home to 8,580 businesses ranging in size and scope from agricultural to heavy manufacturing during the 2nd Quarter of 2016, a growth of 307 establishments from the previous year. Approximately 19% of these businesses were in the Health Care sector, followed by the Professional, Scientific and Technical Services sector with 12%. The combined establishments count for the sectors on (1) Management of Companies and Enterprises, (2) Utilities, (3) Agriculture, Forestry, Fishing and Hunting and (4) Mining made up one percent of the county's private businesses.

Chesterfield County Private Establishments by Sector 2nd Quarter 2016



Compared to the second quarter of 2015, the sectors that experienced the highest growth in number of establishments were Administrative and Support and Waste Management (97 businesses), Health Care and Social Assistance (78 businesses) and Unclassified Establishments (64 businesses). On the other hand, sectors that lost the most number of establishments in the same period were Professional, Scientific and Technical Services sector (loss of 17 businesses) and Management of Companies and Enterprises (loss of 9 businesses).

The following table lists the County's 25 Largest Private Employers. The establishments are broken down by industry, rank and size code. The top County employers are in the Sectors of Transportation and Warehousing, Health Care and Social Assistance, Manufacturing and Retail Trade. Comparatively, the top employment sectors in the Richmond Region are concentrated in Retail Trade (13.2%), Health Care and Social Assistance (12.0%), Construction (8.8%), Accommodation and Food Services (8.7%) and Finance and Insurance (8.4%).

Chesterfield County Top 25 Employers (not including local, state and federal government) - 2nd Quarter 2016

Rank	Rank in 2nd Qtr 2015	Employer	NAICS Code	Industry	Size Code*
1	1	Amazon Com KYDC Inc	493	Warehousing and Storage	09
2	2	HCA Virginia Health System	622	Hospitals	09
3	4	U.P.S.	492	Couriers and Messengers	09
4	3	E.I. DuPont De Nemours Company	325	Chemical Manufacturing	09
5	5	Wal Mart	452	General Merchandise Stores	09
6	9	Kroger	445	Food and Beverage Stores	09
7	6	Hill Phoenix	333	Machinery Manufacturing	09
8	7	Bon Secours Richmond Health System	622	Hospitals	09
9	8	Anteon Corporation	541	Professional, Scientific, and Technical Services	08
10	11	Capital One Bank	522	Credit Intermediation and Related Activities	08
11	13	Food Lion	445	Food and Beverage Stores	08
12	10	Martin's Food Market	445	Food and Beverage Stores	08
13	14	Honeywell International, Inc.	325	Chemical Manufacturing	08
14	17	YMCA	813	Religious, Grantmaking, Civic, Professional, and Similar Organizations	08
15	23	Interpsan Inc	561	Administrative and Support Services	08
16	32	Advantastaff, Inc.	561	Administrative and Support Services	08
17	18	Dominion Virginia Power	221	Utilities	08
18	20	Lowes' Home Centers, Inc.	444	Building Material and Garden Equipment and Supplies Dealers	08
19	19	Sabra Dipping Co LLC	424	Merchant Wholesalers, Nondurable Goods	08
20	24	Virginia Credit Union, Inc.	522	Credit Intermediation and Related Activities	08
21	16	Atlantic Constructors Inc	236	Construction of Buildings	07
22	15	ABB Alstom Power, Inc.	332	Fabricated Metal Product Manufacturing	07
23	25	Abilene Motor Express Inc	484	Truck Transportation	07
24	21	Northrop Grumman Corporation	334	Computer and Electronic Product Manufacturing	07
25	--	B & R Industrial Services, LLC	236	Construction of Buildings	07

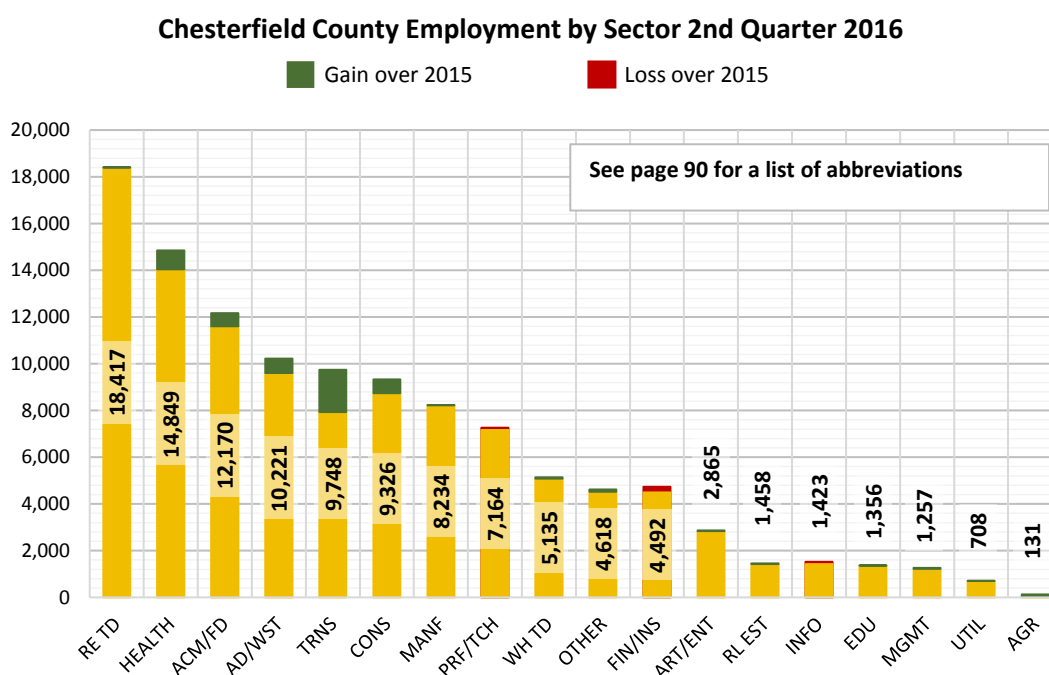
Size Code *
 09 1000 and over employees
 08 500 to 999 employees
 07 250 to 499 employees
 06 100 to 249 employees
 05 50 to 99 employees

Size Code *
 04 20 to 49 employees
 03 10 to 19 employees
 02 5 to 9 employees
 01 0 to 4 employees

Employment Trends

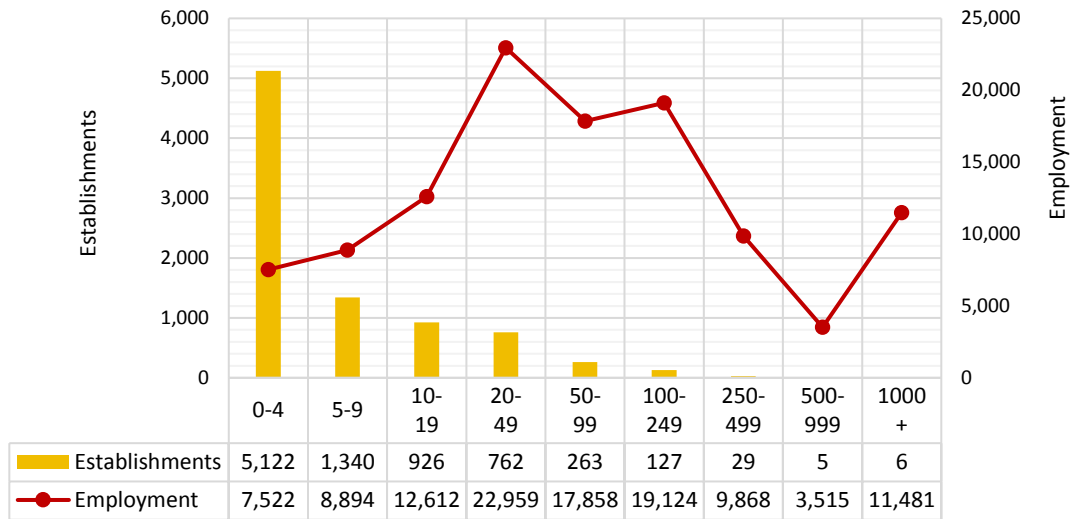
Private businesses in Chesterfield County employed over 113,000 persons in the second quarter of 2016. Over 16% of these jobs were in the Retail Trade sector. The other highest employing sectors were Health Care and Social Assistance (13.1%) and Accommodation and Food Services (10.7%). Combined employment for the Utilities Sector, Unclassified Establishments Sector and Agriculture, Forestry, Fishing and Hunting Sector made up less than one percent of the County's private employment.

The Transportation and Warehousing Sector experienced the highest private employment growth from the previous year. It added 1,818 employees. The other sectors that saw the highest employment gain were Health Care and Social Assistance (810 employees), Administrative and Support and Waste Management (621 employees) and Accommodation and Food Services (570 employees). There were three sectors that experienced employment loss in the same period: Finance and Insurance (loss of 242 employees), Information (loss of 100 employees) and Professional, Scientific and Technical Services sector (loss of 99 employees).



Approximately 60% of the private businesses in the County have four or fewer employees, and provide 6.6% of the County's private employment. While establishments with 1,000 or more employees account for less than one percent of total establishments and provide approximately ten percent of the county's total private employment. Establishments with 20 to 49 employees make up 8.9% of the total number of businesses, but provide the highest percentage of the county's jobs at approximately 20.2%. Approximately 86% of the county's businesses employ less than 20 persons, providing about 25.5% of the county's jobs. Businesses employing 100 or more persons made up almost two percent of the county's establishments, but provided 38.6% of the county's jobs.

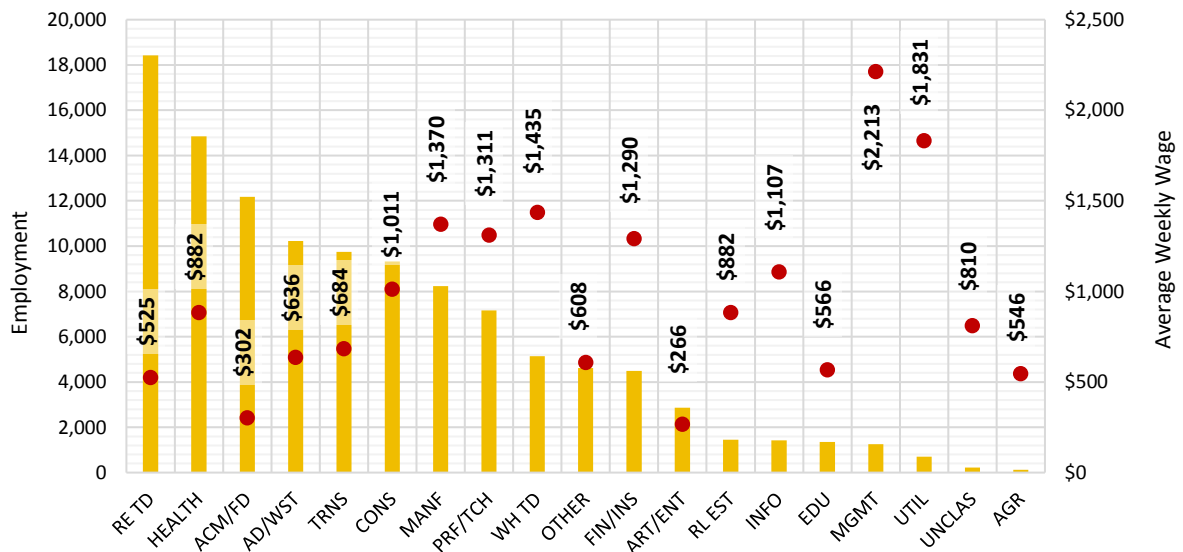
Private Business Size by Employees & Number of Establishments (2nd Quarter 2016)



Wage Trends

The sector on Management of Companies and Enterprises had the highest weekly wage in the County during the second quarter of 2016 at \$2,213. Whereas the Arts, Entertainment, and Recreation Sector has the lowest weekly wage at \$266 in the same period. The top five highest paying sectors in Private businesses (Management, Utilities, Wholesale Trade, Manufacturing and Professional/Technical) provided approximately 19.8% of total jobs. The five lowest paying sectors (Education, Agriculture, Retail, Food/Accommodation and Arts/Entertainment) provided 30.7% of total jobs.

Chesterfield County Percent of Total Employment and Average Weekly Wage (Private) 2nd Quarter 2016



Note: See page 90 for a list of abbreviations

Key Terms

Before proceeding with the discussion of each sector, there are several terms repeatedly used in the following sections. A brief description of these terms and the methodology employed during the analysis process is presented below to serve as a guide in understanding the report. The Data Sources and Methodology section at the end of the report provides a detailed explanation of the analysis process.

NAICS [pronounced as 'nakes']

North American Industry Classification System

- standard used by Federal statistical agencies in **classifying business establishments** for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy
- for this report, we used the **2digit classification (Sector)** for the County's overall employment, establishment and average weekly wage and the **4digit classification (Industry Group)** for the detailed report of each Industry

Location Quotient (LQ)

- ratios that allow an area's distribution or concentration of employment by industry to be compared to a reference or base area's employment
- an analytical statistic that measures **a place's industrial specialization relative to a larger geographic unit**; for this report, we compared the County's employment in each industry to the Richmond Region's numbers (LQ Region) and to Virginia's numbers (LQ VA)

Shift Share Analysis

- attempts to account for the changes in a sector's employment over a given time; compares local economy to the state economy
- the technique distributes the employment change among three contributing factors:

(1) State Growth Share - change attributable to growth of the state economy

(2) Industry Mix Share - change attributable to the local economy's mix of faster or slower than average growing industries (compared to the state)

(3) Local Competitive Share - change due to the competitiveness of the local industries.

For this report:

LQ < 0.75

Industry met by businesses outside locality; must **import** goods/services
(Non-Basic Industry)
*red bar graphs

0.75 < LQ < 1.25

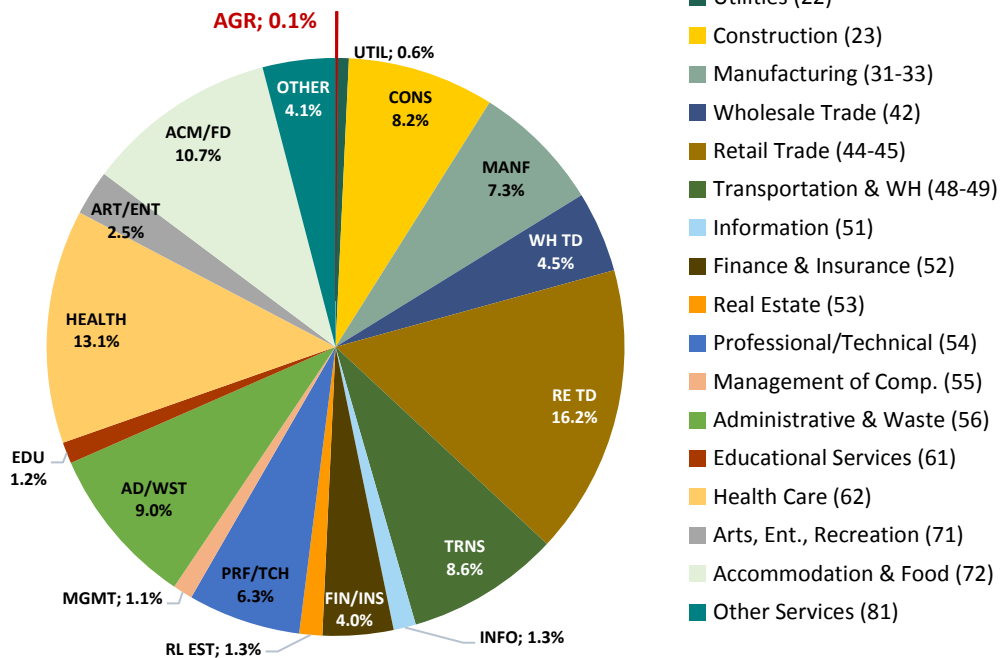
Industry meeting local demands
*yellow bar graphs

LQ > 1.25

Industry that **exports** its goods or services
(Basic Industry)
*green bar graphs

AGRICULTURE, FORESTRY, FISHING & HUNTING SECTOR

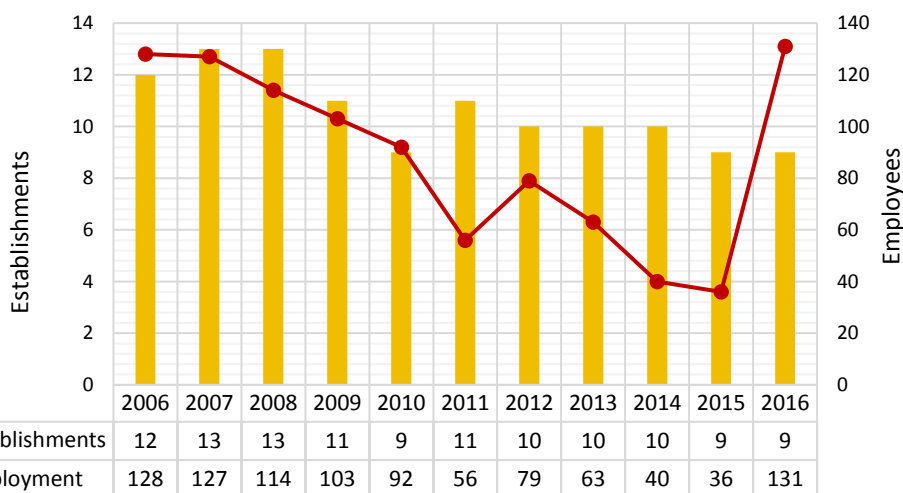
**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Agriculture, Forestry, Fishing, and Hunting** sector comprises establishments engaged in the following four activities:

- Growing Crops
- Raising Animals
- Harvesting Timber
- Harvesting Fish and Other Animals from farms, ranches, or their natural habitats

**Agriculture, Forestry, Fishing & Hunting Sector Trend
(Private, selected 2nd Quarters)**



AGR Sector Numbers:

9 establishments

- 0.1% of County's Total
- 25% decline from 2006 establishment count

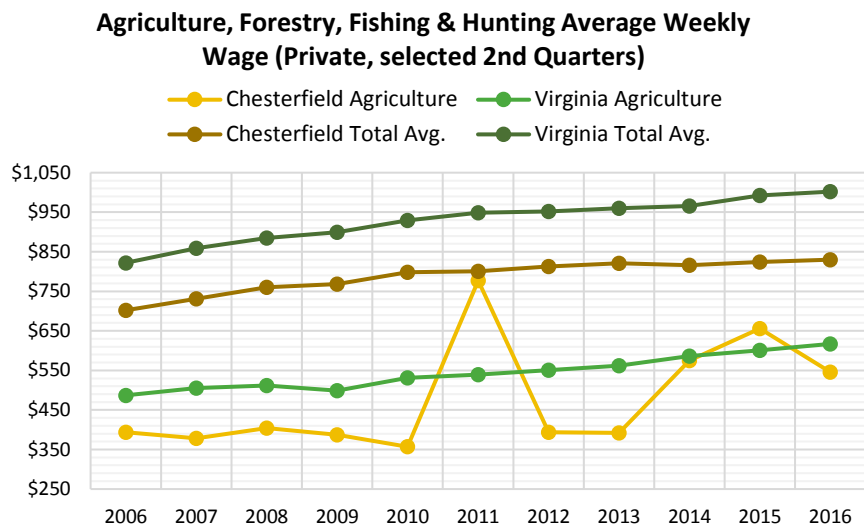
131 employed

- 0.1% of County's Total
- 2.3% growth from 2006 employment count
- 263.9% growth from previous year's employment numbers

\$546

Average Weekly Wage

The average weekly wage of a worker in the Agriculture, Forestry, Fishing and Hunting sector was \$546 during the second quarter of 2016. This represents a 38.6% increase over the 2006 average of \$394, or an average annual increase of 10.3%. However, Chesterfield County's average weekly wage for this sector has seen fluctuations. Compared to 2015, the average weekly wage declined by 16.8%. In 2016, the county's Agriculture sector's weekly wage is lower compared to Virginia's Agriculture sector's weekly wage (\$617), the County's weekly wage for All Sectors (\$830) and the State's weekly wage for All Sectors (\$1,002). Virginia's Agriculture sector weekly wage experienced an average annual growth of 2.4% over 2006 and 2.7% growth over 2015.



Job Distribution

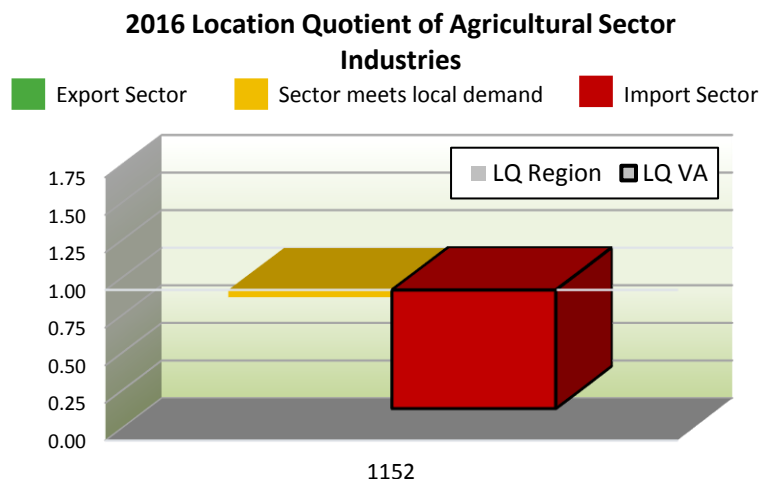
Top Agriculture, Forestry, Fishing & Hunting Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
1152	Support Activities for Animal Production	3	10	\$267

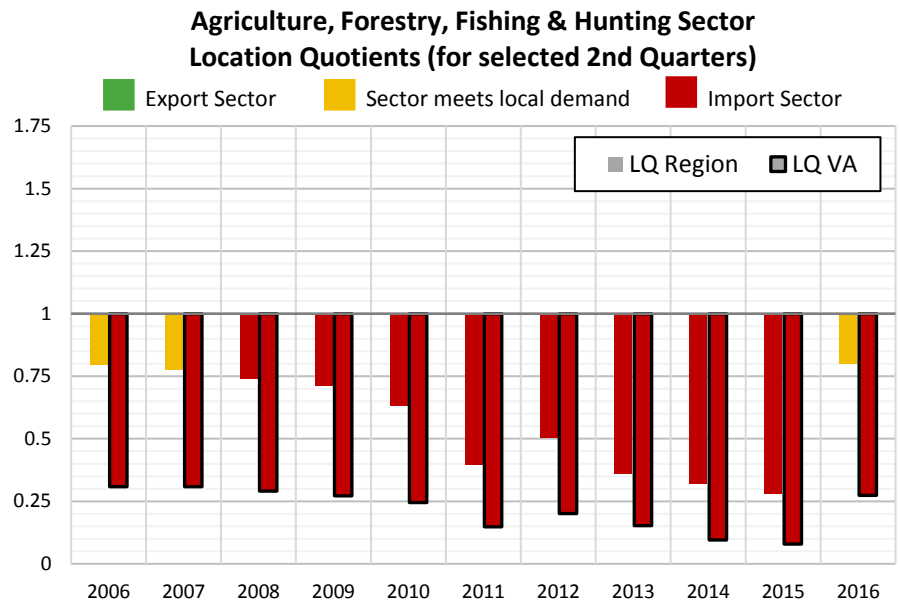
At the Industry Group (4digit) classification, only one industry has available information for Chesterfield County. It was the Support Activities for Animal Production. This industry has three establishment (one third) of the County's total Agriculture Sector's establishments and employs 10 workers (approximately 8% of the sector's employment).

Location Quotient Analysis

Industry group 1152 has location quotient indicating that the industry is mostly meeting the demand of the local population, particularly at the regional level. However, the nature of this sector implies that at least some of the product is consumed outside of the locality, and that county consumers must look elsewhere for these services.



The Location Quotient trend for the Agriculture, Forestry, Fishing and Hunting sector shows that overall, the sector has been weakening since 2006 in both the state and regional levels. Once a basic part of Chesterfield's economy, it is now an import sector. However, this sector slightly strengthened in the past year. Within the context of the region, this sector met the demand of the local population in 2016.



Shift Share Analysis

Employment in the Agricultural sector in Chesterfield County grew less than the overall average of the state economy. If this sector had matched the state overall growth rate for all industries, this sector would have added five jobs between 2006-2016, but instead grew by only three jobs. The **State Growth Share** (employment change attributable to growth in the overall state economy) is shown below. Chesterfield overall added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Agriculture	128	3.72%	5	3
Countywide			3,717	13,643

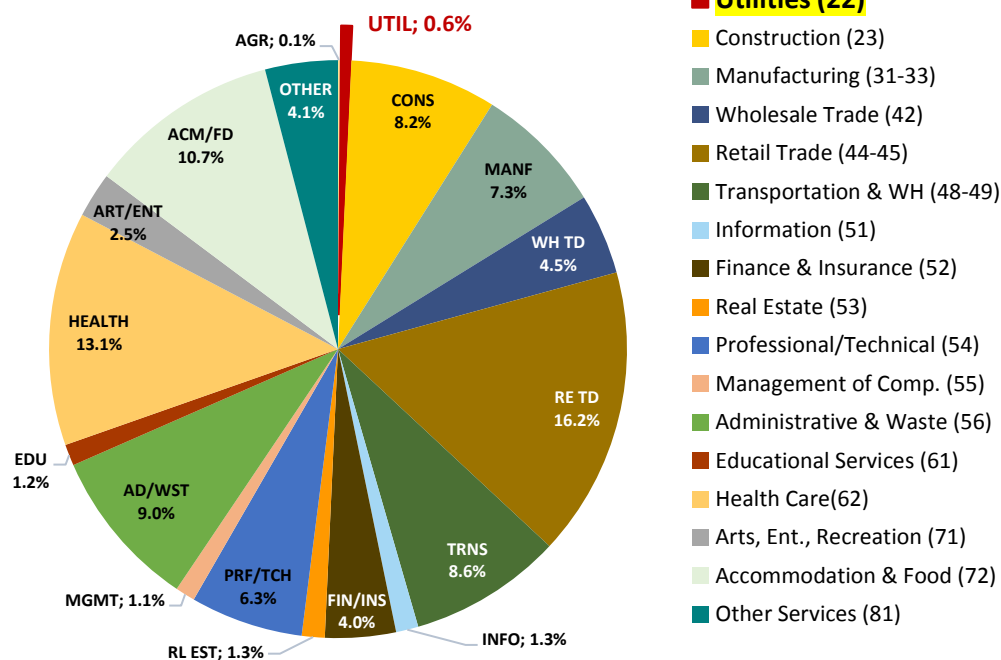
The Agriculture sector was not a competitive industry in Chesterfield from 2006-2016. Local conditions contributed to the non-realization of three jobs in this sector during this time. However, Chesterfield overall is a highly competitive locality within the state, with local conditions contributing 11,445 jobs above that of the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Agriculture	128	2.34%	4.97%	-3
Countywide				11,445

UTILITIES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Utilities sector** comprises establishments engaged in the provision of the following utility services:

- Electric power
- Natural gas
- Steam supply
- Water supply
- Sewage removal

Within this sector, the specific activities associated with the utility services provided vary by utility (i.e. electric power includes generation, transmission, and distribution).

UTIL Sector Numbers:

10 establishments

- 0.1% of County's Total
- 11.1% increase from 2006 establishment count

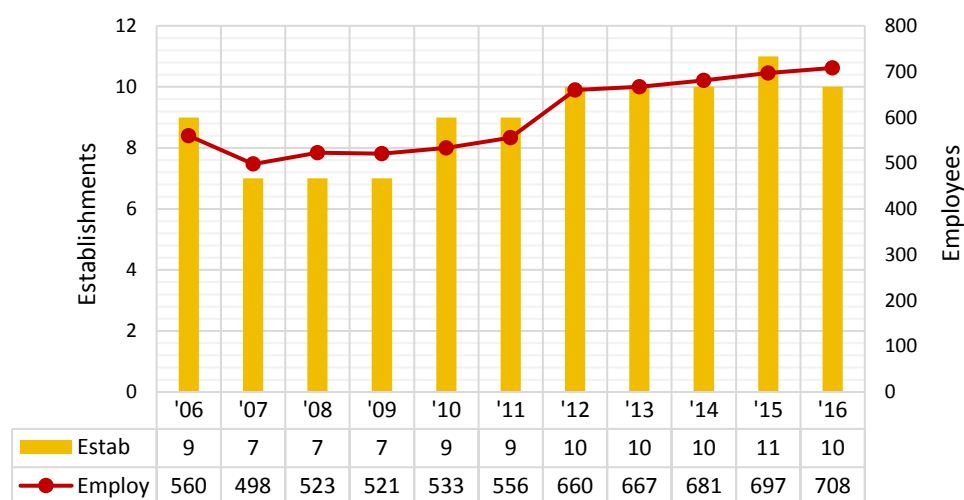
708 employed

- 0.6% of County's Total
- 26.4% growth from 2006 employment count

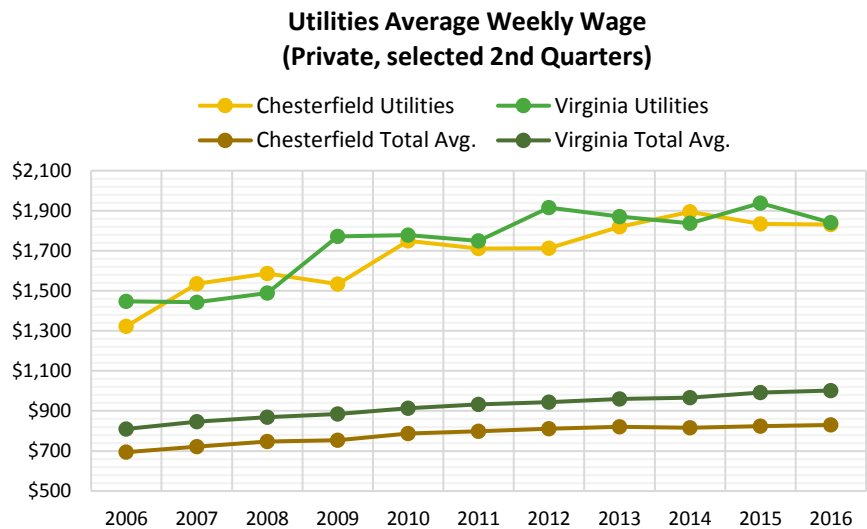
\$1,831

Average Weekly Wage

Utilities Sector Trend (Private, selected 2nd Quarters)



In the second quarter of 2016, the average weekly wage of a worker in the Utilities sector in the County was \$1,831. This was an increase of 38.4% over the county's 2006 average of \$1,323; or an average annual increase of 3.5%. However, this sector's average weekly wage in 2016 is a 0.16% decline from 2015. Both Chesterfield and Virginia Utilities average weekly wage is higher than the County and State's weekly wage for all sectors.

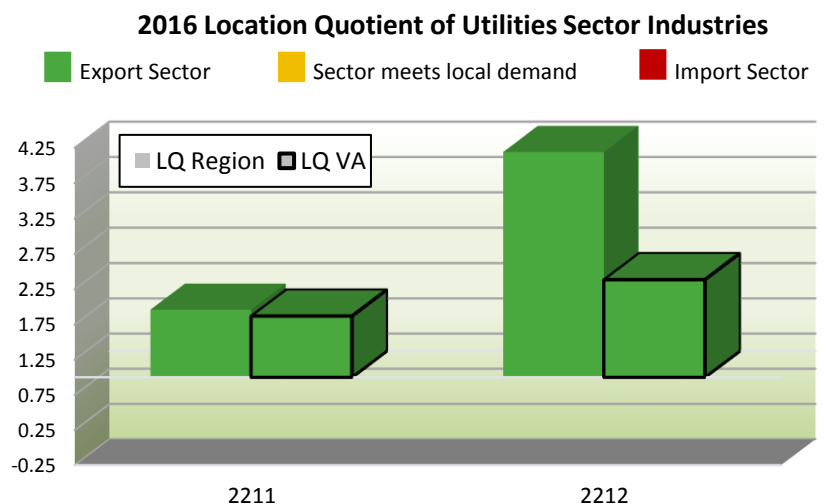


Job Distribution

Top Utilities Sector Industries by Employment (Private, 2nd Quarter 2016)

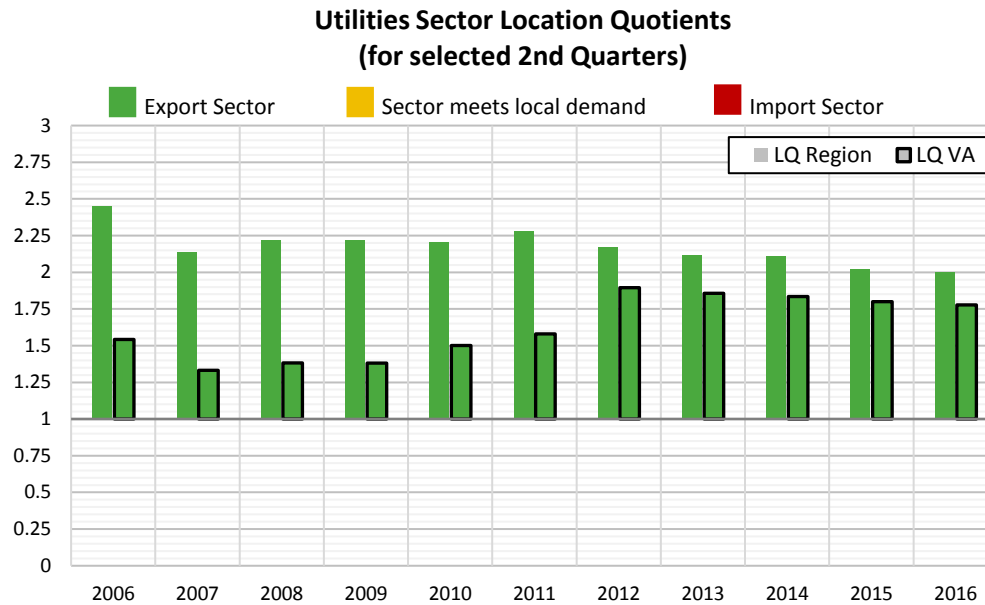
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
2211	Electric Power Generation, Transmission and Distribution	7	575	\$1,864
2212	Natural Gas Distribution	3	133	\$1,685

The Electric Power Generation, Transmission and Distribution industry employed 81.2% of the county's Utilities sector workers in the 2nd quarter of 2016. The other reportable industries in the county, Natural Gas Distribution, employed the remaining 19.8%. The average weekly wage for each industry was \$1,864 and \$1,685, respectively.



Location Quotient Analysis

Analysis of industries within the Utilities sector indicates that this is one of the strongest economic sectors in the county, exporting a number of services to many localities and customers outside of the county's boundaries. This is mainly because of the Chesterfield Power Station, a coal-fired electrical generation facility built in the first half of the twentieth century. Chesterfield County has historically enjoyed a rather strong Utilities sector, despite some fluctuation in strength over the years. Both industry groups within the sector export at both the regional and state levels.



Shift Share Analysis

Employment in the Utilities sector in Chesterfield County outpaced the growth of the overall average of the state economy. This sector added 148 jobs between 2006 and 2016, as shown in the table below. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Utilities	560	3.72%	21	148
Countywide			3,717	13,643

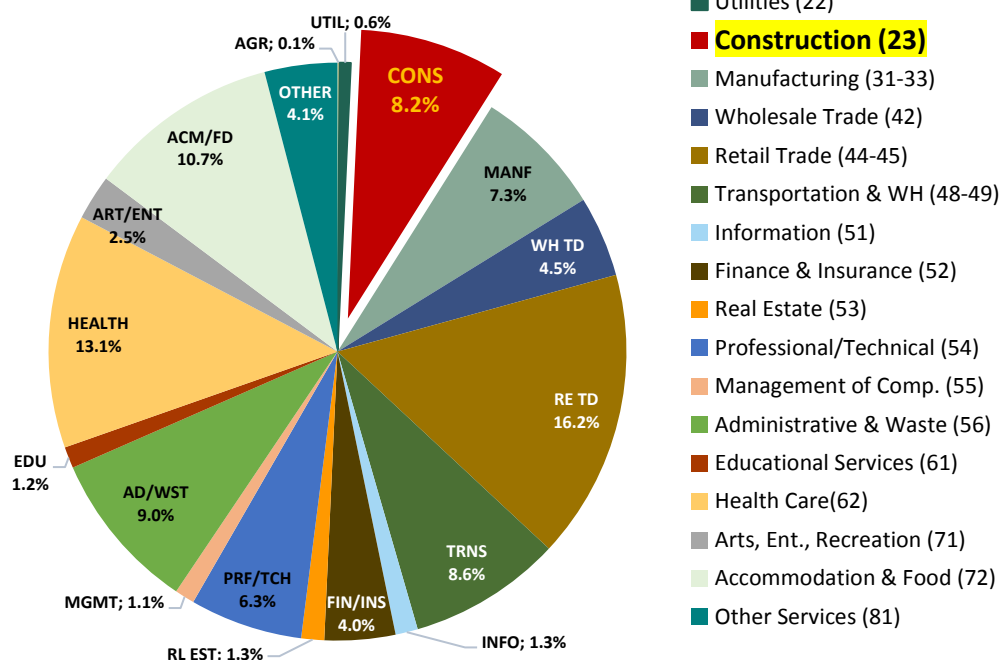
The Utilities sector in Chesterfield County is a competitive industry, as indicated by the addition of 149 jobs in this sector. This sector's growth rate for the County indicated job gain from 2006 to 2016 compared to the state's employment rate for the same sector, a decline of 0.15% during the same 10-year period.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Utilities	560	26.43%	-0.15%	149
Countywide				11,445

CONSTRUCTION SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Construction sector** comprises establishments primarily engaged in:

- The construction of buildings or engineered projects (e.g. highways and utility systems)
- The preparation of sites for new construction
- Subdividing land for sale as building sites

CONS Sector Numbers:

885 establishments

- 10.3% of County's Total
- 24% decline from 2006 establishment count

9,326 employed

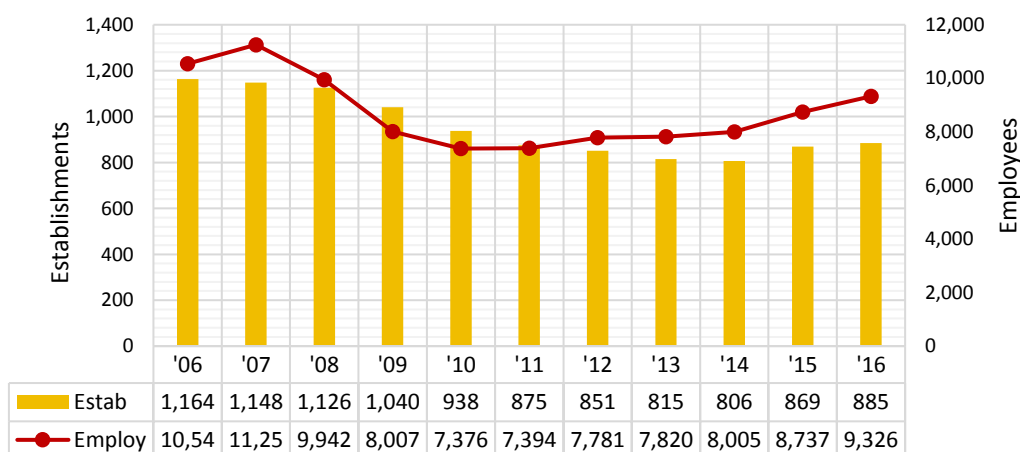
- 8.2% of County's Total
- 11.5% decline from 2006 employment count
- 6.7% growth from previous year

\$1,011

Average Weekly Wage

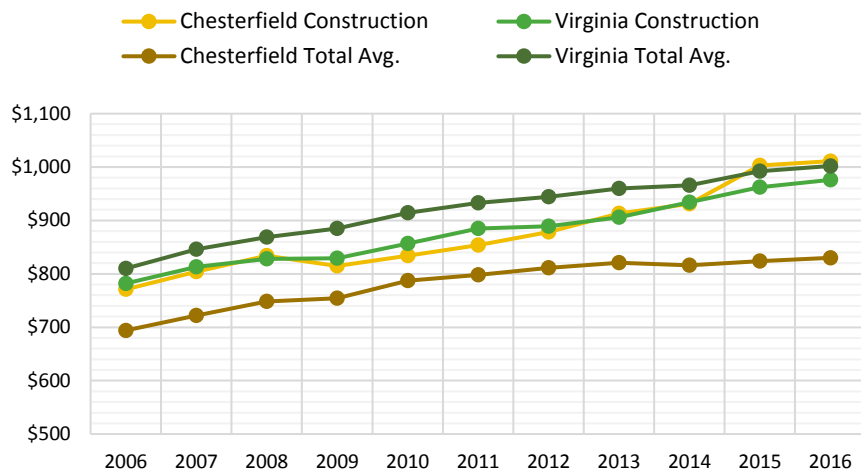
- higher than the State's CONS average weekly wage, the County's and the State's average weekly wage for all sectors

Construction Sector Trend (Private, selected 2nd Quarters)



The average weekly wage for a Chesterfield County worker in the Construction sector was \$1,011 in the second quarter of 2016, an increase of 31.1% over 2006 or an average annual increase of 2.8%. It is also higher than the State's weekly wage for all sectors (\$1,002) and the County's weekly wage for all sectors (\$830). The average wage for the Construction sector in Virginia was \$976, an increase of 24.8% since 2006 or an average annual increase of 2.3%.

Construction Average Weekly Wage (selected 2nd Quarters)



Job Distribution

Top Construction Sector Industries by Employment (Private, 2nd Quarter 2016)

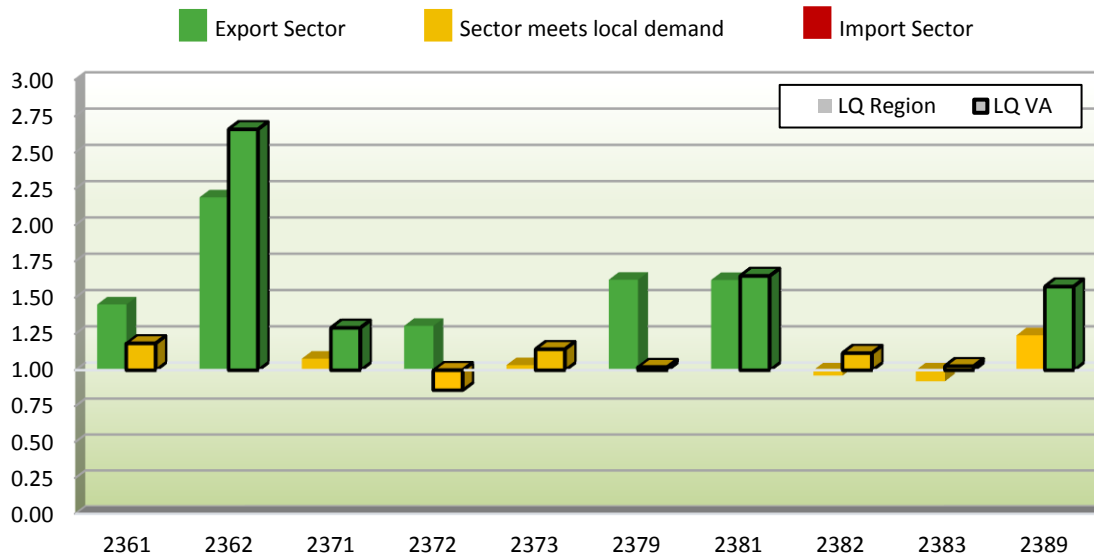
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
2382	Building Equipment Contractors	213	2,254	\$1,047
2362	Nonresidential Building Construction	54	1,729	\$1,196
2381	Foundation, Structure, and Building Exterior	119	1,318	\$873
2389	Other Specialty Trade Contractors	116	1,194	\$979
2361	Residential Building Construction	198	885	\$1,049

Over 24% of the County's Construction employees work in the Building Equipment Contractors industry. On the other hand, the highest paying industry in this sector is the Nonresidential Building Construction (\$1,196 average per week) which employs approximately 19% of County Construction workers.

Location Quotient Analysis

All of the ten industries in the Construction sector meets or exceeds the demand of the local population. Two industries, Nonresidential Building Construction (2362) and Foundation, Structure and Building Exterior (2381) are basic or export industries at the region and the state level. In general, the greater the location quotient (higher bar), the stronger the industry group is in the local economy, while the lower the location quotient (lower bar), the weaker the industry group is in the local economy.

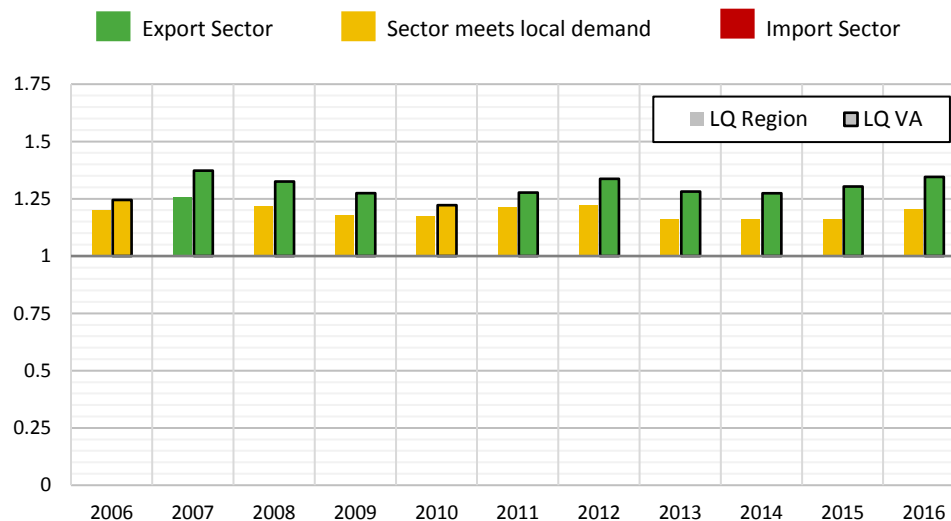
2016 Location Quotient of Construction Sector Industries



2361	Residential Building Construction	2379	Other Heavy Construction
2362	Nonresidential Building Construction	2381	Building Foundation/Exterior Contractors
2371	Utility System Construction	2382	Building Equipment Contractors
2372	Land Subdivision	2383	Building Finishing Contractors
2373	Highway, Street and Bridge Construction	2389	Other Specialty Trade Contractors

The location quotient trend for 2006-2016 revealed that the Construction sector has declined in strength from 2007-2010, but has increased since. Although majority of the sector's goods and services most likely remains within the county, it is probable that at least a portion of said goods and services may be consumed by areas outside of Chesterfield. It is important to consider the effects of the economic downturn in housing construction when analyzing this sector, as these values may be artificially inflated.

Construction Sector Location Quotients (for selected 2nd Quarters)



Shift Share Analysis

Employment in the Construction sector in Chesterfield County grew less than the overall average of the state economy. If it had matched the state overall growth rate for all industries, it would have added 392 jobs from 2006-2016, but instead lost 1,217 jobs. Chesterfield overall added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Construction	10,543	3.72%	392	-1,217
<i>Countywide</i>			<i>3,717</i>	<i>13,643</i>

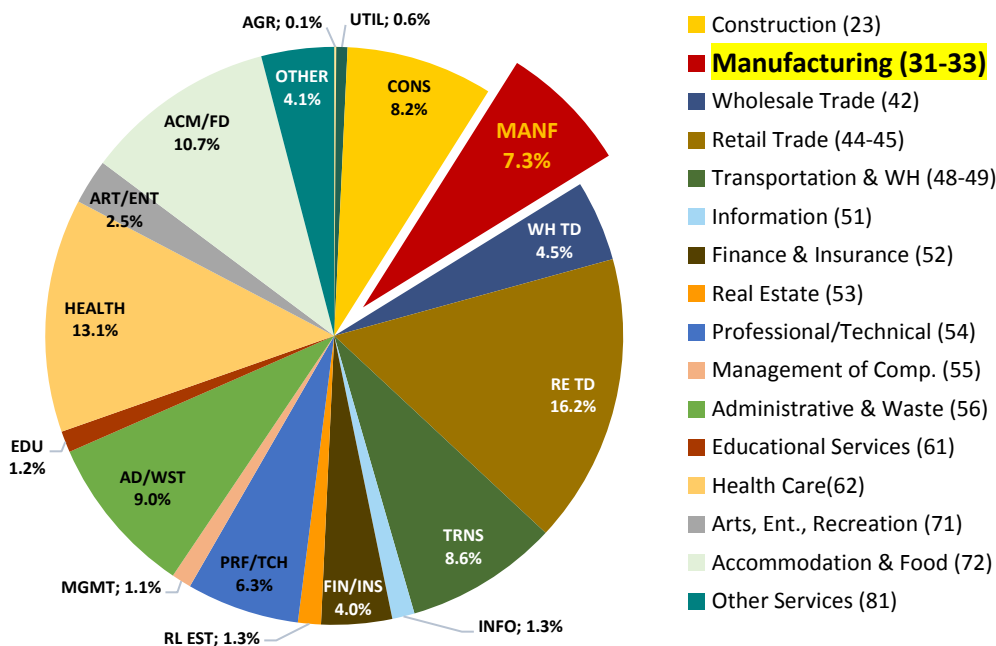
Despite the economic downturn, the Construction sector remains a competitive industry in Chesterfield. This sector's employment rate may have declined 11.5% from 2006 to 2016, but that is lower than the State's employment rate for the same sector which weakened by 25.5%. Local conditions contributed to the addition of 1,470 jobs in Construction for the said period. Chesterfield, overall, is a highly competitive locality within the state, with local conditions contributing 11,445 jobs above that of the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Construction	10,543	-11.54%	-25.48%	1,470
<i>Countywide</i>				<i>11,445</i>

MANUFACTURING SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**

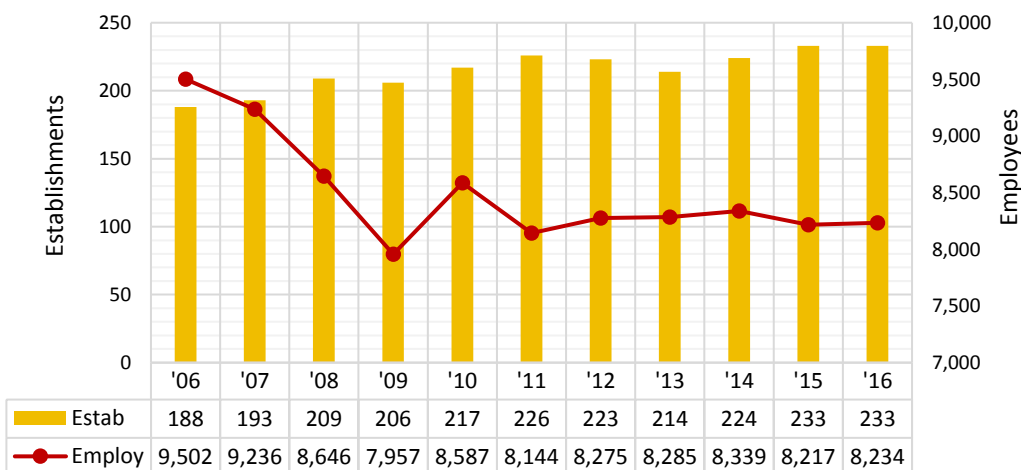


The **Manufacturing sector** comprises establishments engaged in the transformation of materials, substances, or components into products utilizing the following methods:

- Mechanical
- Physical
- Chemical

The assembling of component parts of manufactured products is considered manufacturing.

Manufacturing Sector Trend (Private, selected 2nd Quarters)



MANF Sector Numbers:

223 establishments

- 2.7% of County's Total
- 23.9% growth from 2006 establishment count

8,234 employed

- 7.3% of County's Total
- 13.3% decline from 2006 employment count
- 0.2% increase from previous year
- average annual growth rate of 1.3% (2006-2016)

\$1,370

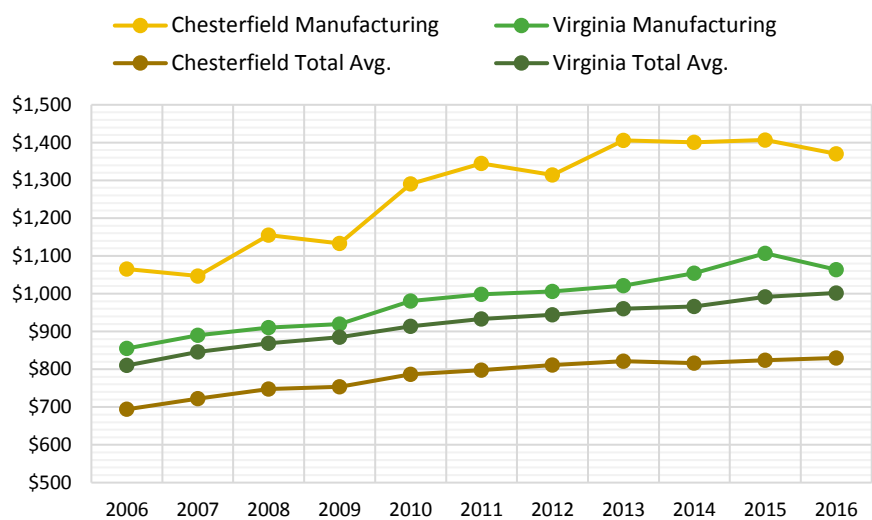
Average Weekly Wage

Between 2006 and 2016, the County's Manufacturing sector establishments may have grown 23.9%, its employment levels, on the other hand, have declined by 13.3%.

The average weekly wage of a worker in the Manufacturing sector in Chesterfield County was \$1,370 in the second quarter of 2016. This is a 28.6% increase over 2006, or an average annual increase of 2.7%. The average weekly wage in this sector for Virginia was \$1,064 in

the second quarter of 2016, which represented a 24.4% increase over 2006. Chesterfield's total average weekly wage was \$830, an increase of 19.6% over 2006, and Virginia's average weekly wage was \$1,002, representing an increase of 23.7% over 2006.

Manufacturing Average Weekly Wage (selected 2nd Quarters)



Job Distribution

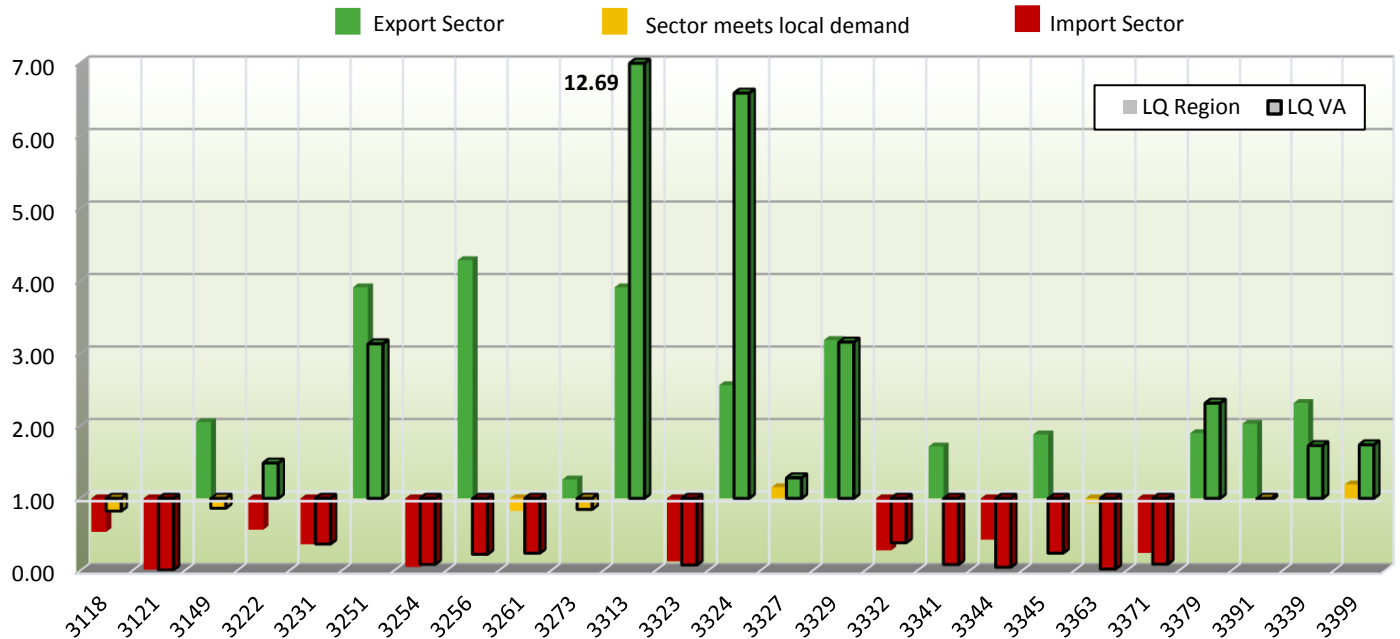
Top Manufacturing Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
3324	Boiler, Tank, and Shipping Container Manufacturing	7	493	\$2,297
3313	Alumina and Aluminum Production and Processing	3	418	\$1,227
3339	Other General Purpose Machinery Manufacturing	10	330	\$1,439
3399	Other Miscellaneous Manufacturing	16	285	\$1,058
3222	Converted Paper Product Manufacturing	6	217	\$1,151
3329	Other Fabricated Metal Product Manufacturing	6	208	\$1,188

Majority of the Manufacturing sector industries have non-disclosable data (meaning there are less than three establishments in that industry). Of the reporting industries, Boiler, Tank and Shipping Container Manufacturing industry employed the most, accounting for 493 employees or approximately 6% of the total sector employment in the County. The highest-paying reporting industry group was Pharmaceutical Medicine Manufacturing, with an average weekly wage of \$2,653. This industry accounted for 0.10% of total sector employment.

Location Quotient Analysis

2016 Location Quotient of Manufacturing Sector Industries

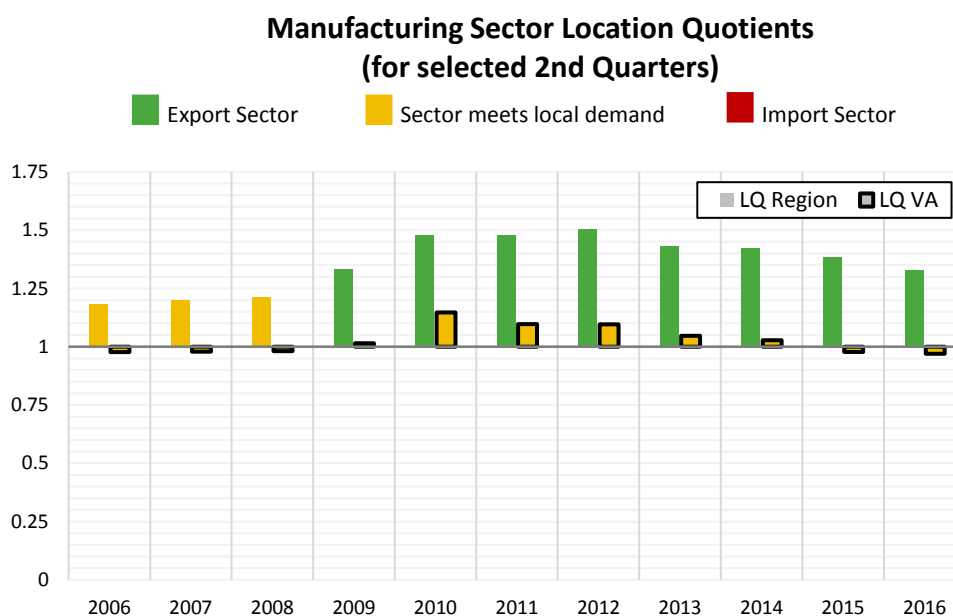


3118	Bakeries and Tortilla Manufacturing
3121	Beverage Manufacturing
3149	Other Textile Product Mills
3222	Converted Paper Product Manufacturing
3231	Printing & Related Support Activities
3251	Basic Chemical Manufacturing
3254	Pharmaceutical & Medicine Manufacturing
3256	Soap, Cleaning Compound & Toilet Preparation Manufacturing
3261	Plastics Product Manufacturing
3273	Cement & Concrete Product Manufacturing
3313	Alumina and Aluminum Production and Processing
3323	Architectural and Structural Metals Manufacturing
3324	Boiler, Tank, and Shipping Container Manufacturing
3327	Machine Shops; Turned Product; and Screw, Nut and Bolt Manufacturing

3329	Other Fabricated Metal Product Manufacturing
3332	Industrial Machinery Manufacturing
3341	Computer & Peripheral Equipment Manufacturing
3344	Semiconductor & Other Electronic Component
3345	Navigational, Measuring, Electromedical & Control Instruments Manufacturing
3363	Motor Vehicle Parts Manufacturing
3371	Household & Institutional Furniture and Kitchen Cabinet Manufacturing
3379	Other Furniture & Related Product Manufacturing
3391	Medical Equipment & Supplies Manufacturing
3339	Other General Purpose Machinery Manufacturing
3399	Other Miscellaneous Manufacturing

Of the 25 reportable Manufacturing sector industry groups in Chesterfield, six are considered basic, or exporting to areas outside of the county at both the state and regional levels. Basic industries are drivers of the local economy, typically bringing in money from surrounding jurisdictions for services and goods provided. It is noted that at the state employment comparison of these six export industries, the County is extremely basic in two industries. First is the Alumina and Aluminum Production and Processing (3313) which scored an LQ of 12.69. This representation is due to the presence of the Reynold's Metals Plant located in north Chesterfield County which is responsible for providing aluminum building sheet to the construction industry. The second industry is the Boiler, Tank, and Shipping Container Manufacturing (3324) that has an LQ of 6.59.

When compared to the regional level employment, the County is basic in Other Textile Product Mills (3149), Soap, Cleaning Compound, and Toilet Preparation (3256), Computer and Peripheral Equipment Manufacturing (3341), Navigational, Measuring, Electromedical, and Control Instruments Manufacturing (3345) and Medical Equipment and Supplies Manufacturing (3391) Industries. Other industries where the County is basic at the state employment comparison are Converted Paper Product Manufacturing (3222), Machine Shops; Turned Product; and Screw, Nut and Bolt Manufacturing (3327) and Other Miscellaneous Manufacturing (3399) Industries.



The Location Quotient Analysis trend for the Manufacturing sectors finds that this industry has been increasing in strength in 2006, achieving its highest LQ Region score of 1.43 in 2012. At the regional level employment comparison, the sector has since become an export or basic sector in 2009. Whereas in the state level employment comparison, it remains to meet the local demand. Chesterfield still retains a strong base in some individual Manufacturing industry groups and, due to its nature, much of this sector's products are exported.

Shift Share Analysis

Employment in the Manufacturing sector in Chesterfield County grew less than the overall average of the state economy. If it had matched the state overall growth rate for all industries, it would have added 353 jobs from 2006-2016, but instead lost 1,268 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Manufacturing	9,502	3.72%	353	-1,268
Countywide			3,717	13,643

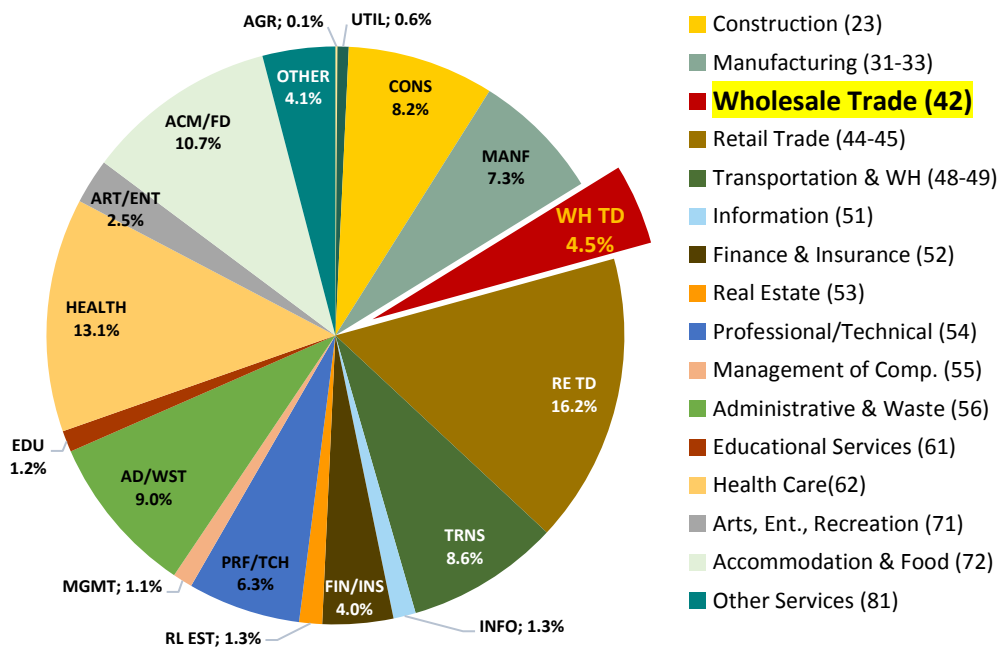
The Manufacturing sector is a competitive industry in the County. Local conditions attributed to the realization of 681 jobs in this sector between 2006 and 2016 despite the declining sector's County employment rate in the same period. This rate (-13.3%), however, is lower than the State's employment rate for the same sector which was -20.5%. Nationwide, this sector is undergoing a shift from human-based production methods to machine-based components, which may have contributed, at least in part, to the declining employment rates. Chesterfield County, overall, is a highly competitive jurisdiction within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Manufacturing	9,502	-13.34%	-20.51%	681
Countywide				11,445

WHOLESALE TRADE SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Wholesale Trade** sector comprises establishments engaged in wholesaling merchandise. The wholesaling process is an intermediate step in the distribution of merchandise. Wholesalers sell:

- goods for resale (i.e. to retailers)
- capital or durable non-consumer goods
- raw and intermediate materials and supplies used in production

WH TD Sector Numbers:

541 establishments

- 6.3% of County's Total
- 10.3% decline from 2006 establishment count

5,135 employed

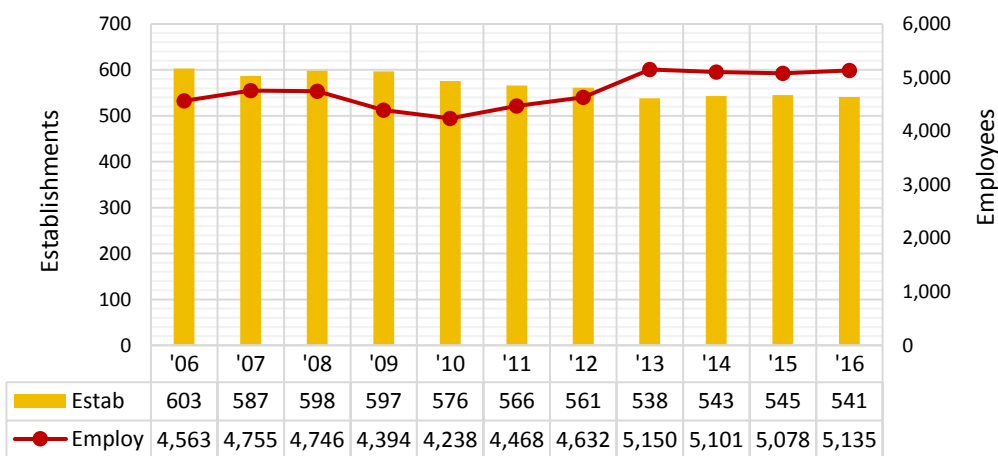
- 4.5% of County's Total
- 12.5% growth from 2006 employment count

\$1,435

Average Weekly Wage

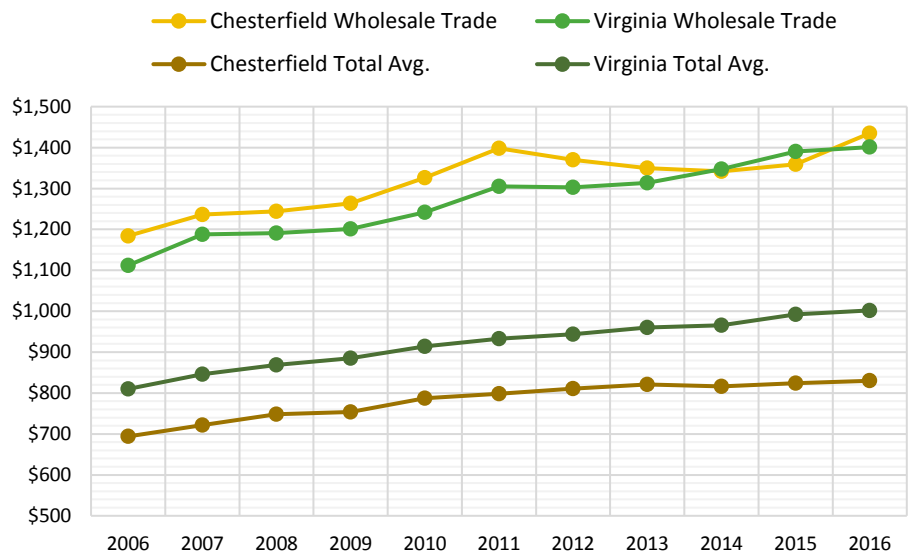
- 5.6% increase from previous year's wage

Wholesale Trade Sector Trend (Private, selected 2nd Quarters)



The average weekly wage for a Wholesale Trade sector employee in Chesterfield County was \$1,435 in the second quarter of 2016. This is an increase of 21.2% over 2006, or an average annual increase of almost 2%. In most years, the County's average weekly wage in this sector is higher than the State's. This sector's average weekly wage in Virginia was \$1,401, an increase of approximately 26%, or a 2.4% average annual increase. Chesterfield's total average weekly wage was \$830, while Virginia's average weekly wage was \$1,002.

Wholesale Trade Average Weekly Wage (selected 2nd Quarters)



Job Distribution

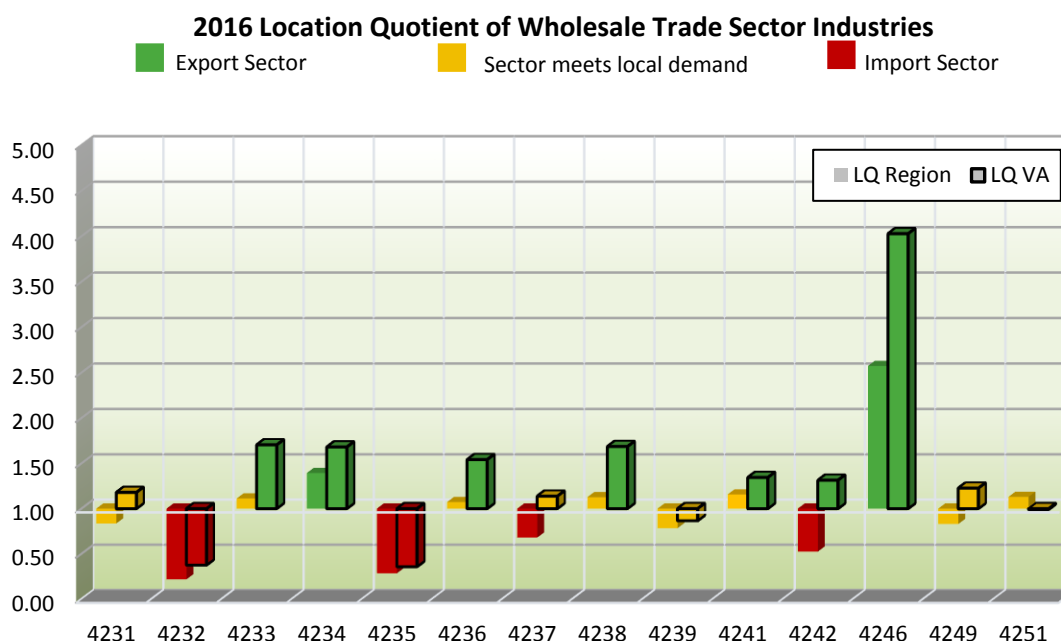
Top Wholesale Trade Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	51	889	\$2,394
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	72	768	\$1,275
4251	Wholesale Electronic Markets and Agents and Brokers	195	692	\$1,534
4233	Lumber and Other Construction Materials Merchant Wholesalers	20	329	\$870
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	31	314	\$1,154

The Professional and Commercial Equipment and Supplies Merchant Wholesalers (4234) industry reported the highest employment in this sector at approximately 17.3% or 889 jobs. It also offers the second highest average weekly wage in the sector at \$2,394. The Drugs and Druggists' Sundries Merchant Wholesalers (4242) provides the highest average weekly wage at \$2,418. On the other hand, the Wholesale Electronic Markets and Agents and Brokers (4251) has the most number of establishments in this sector with 195 establishments, accounting for 36% of this sector's total.

Location Quotient Analysis

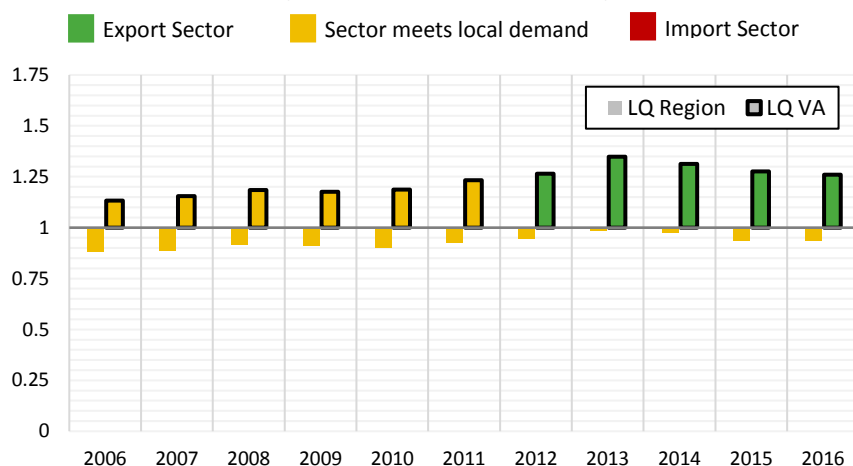
Of the 14 reporting Wholesale Trade sector industries, only two are considered basic industry when compared to both the region and the state. These are the Professional and Commercial Equipment and Supplies Merchant Wholesalers (4234; LQ Region score of 1.39; LQ Virginia score of 1.68) and the Chemical and Allied Products Merchant Wholesalers (4246; LQ Region score of 2.57; LQ Virginia score of 4.03). Also, there were five industries that were considered basic at the state employment level but scored lower in the employment comparison with the region. On the other hand, there were two industries that were non-basic. These are Furniture and Home Furnishing Merchant Wholesalers (4232) and Metal and Mineral (except Petroleum) Merchant Wholesalers (4235). Non-basic industries require goods and services to be imported since they cannot meet the demands of the local population.



4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers
4232	Furniture and Home Furnishing Merchant Wholesalers
4233	Lumber and Other Construction Materials Merchant Wholesalers
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers
4237	Hardware, and Plumbing and Heating Equipment

4238	Machinery, Equipment, and Supplies Merchant Wholesalers
4239	Miscellaneous Durable Goods Merchant Wholesalers
4241	Paper and Paper Product Merchant Wholesalers
4242	Drugs and Druggists' Sundries Merchant Wholesalers
4246	Chemical and Allied Products Merchant Wholesalers
4249	Miscellaneous Nondurable Goods Merchant Wholesalers
4251	Wholesale Electronic Markets and Agents and Brokers

Wholesale Trade Sector Location Quotients (for selected 2nd Quarters)



The trend for the Location Quotient of the Wholesale Trade sector finds that it has been strengthening. This sector's overall strength is such that it is considered to meet local demand compared to the region, but a stronger presence compared to the state. Since 2012, this sector became an export sector compared to the state.

Shift Share Analysis

Employment in Chesterfield County's Wholesale Trade sector grew faster than the overall average of the state economy. It added 572 jobs. If this sector matched the overall growth rate, it only would have added 170 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Wholesale Trade	4,563	3.72%	170	572
Countywide			3,717	13,643

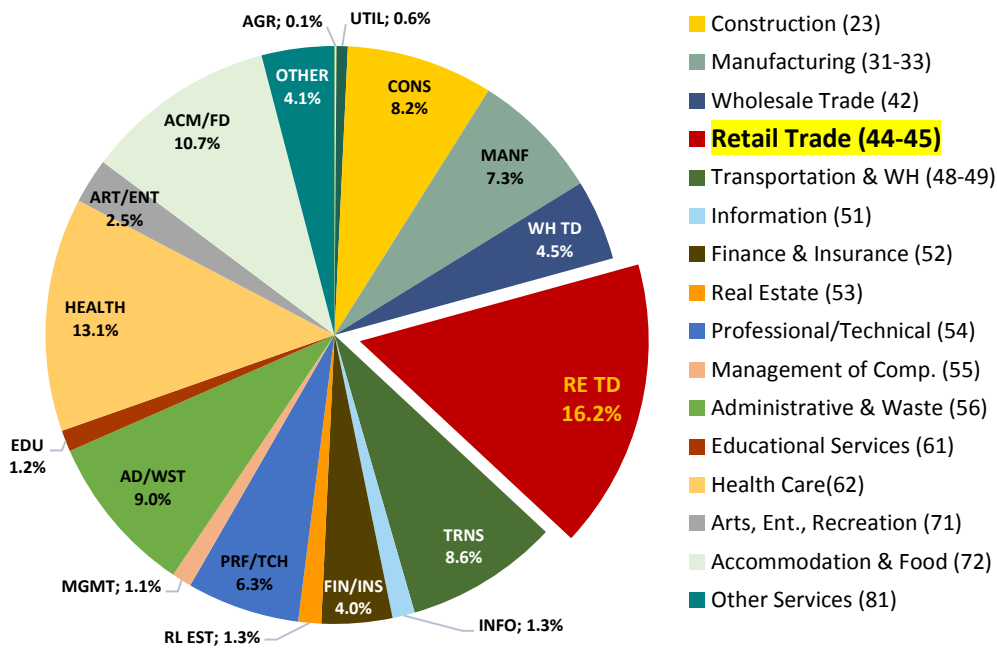
The Wholesale Trade sector is a competitive industry in the County. Local conditions attributed to the realization of 932 jobs in this sector between 2006 and 2016. This sector experienced employment growth in the County despite the state's declining employment rate in the same sector and period. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Wholesale Trade	4,563	12.54%	-7.89%	932
Countywide				11,445

RETAIL TRADE SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Retail Trade** sector comprises establishments engaged in:

- Retailing and merchandise, generally without transformation
- Rendering services incidental to the sale of merchandise
- The final step in the distribution of merchandise.

RE TD Sector Numbers:

937 establishments

- 10.9% of County's Total
- 3.3% growth from 2006 establishment count
- 1.3% growth from previous year's establishment numbers

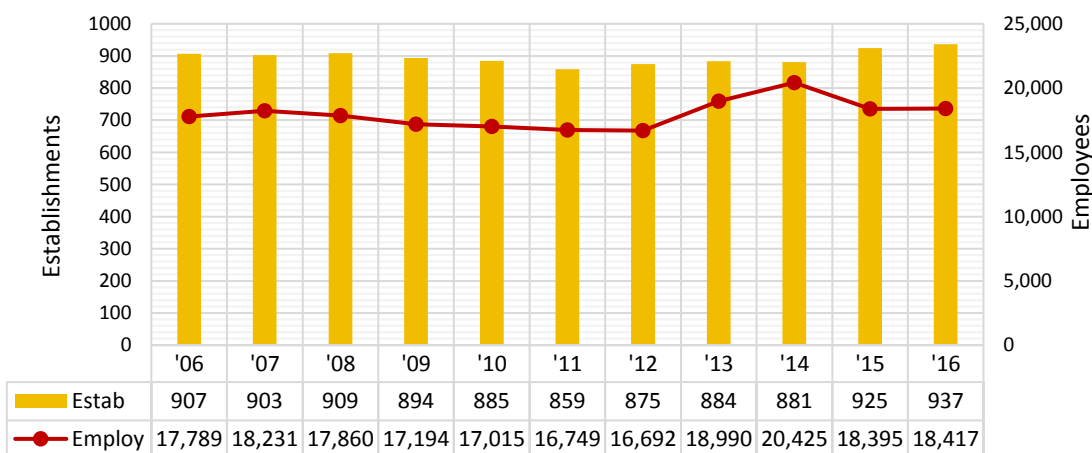
18,417 employed

- 16.2% of County's Total (largest employing sector)
- 3.5% growth from 2006 employment count
- 0.53% average annual growth rate (2006-2016)

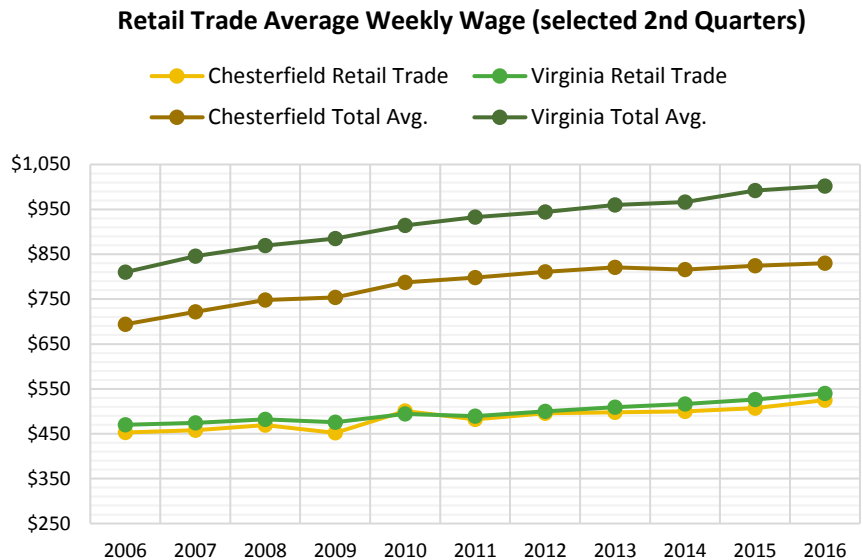
\$525

Average Weekly Wage

Retail Trade Sector Trend (Private, selected 2nd Quarters)



In the second quarter of 2016, the average weekly wage for a County employee in the Retail Trade sector is \$525. This is a 15.9% increase over 2006, or an average annual increase of 1.56%. The Virginia average weekly wage for this sector is \$540, a 14.9% increase over 2006. Both County and Virginia average weekly wage for the Retail Trade sector is below the County (\$830) and State (\$1,002) total average weekly wage.



Job Distribution

Nearly 22% of Retail Trade employees work under the Grocery Stores industry (4451). The Health and Personal Care Stores industry (4461) had 109 establishments, the highest number of establishments in this sector accounting for 11.6% of the total establishments count. It is closely followed by the Gasoline Stations industry (4471; 102 establishments) with nearly 11% of the total establishments count. It is the Automobile Dealers Industry (4411) that offer that highest average weekly wage in this sector at \$1,005. On the other hand, the Shoe Store Industry (4482) offer the lowest average weekly wage at \$242.

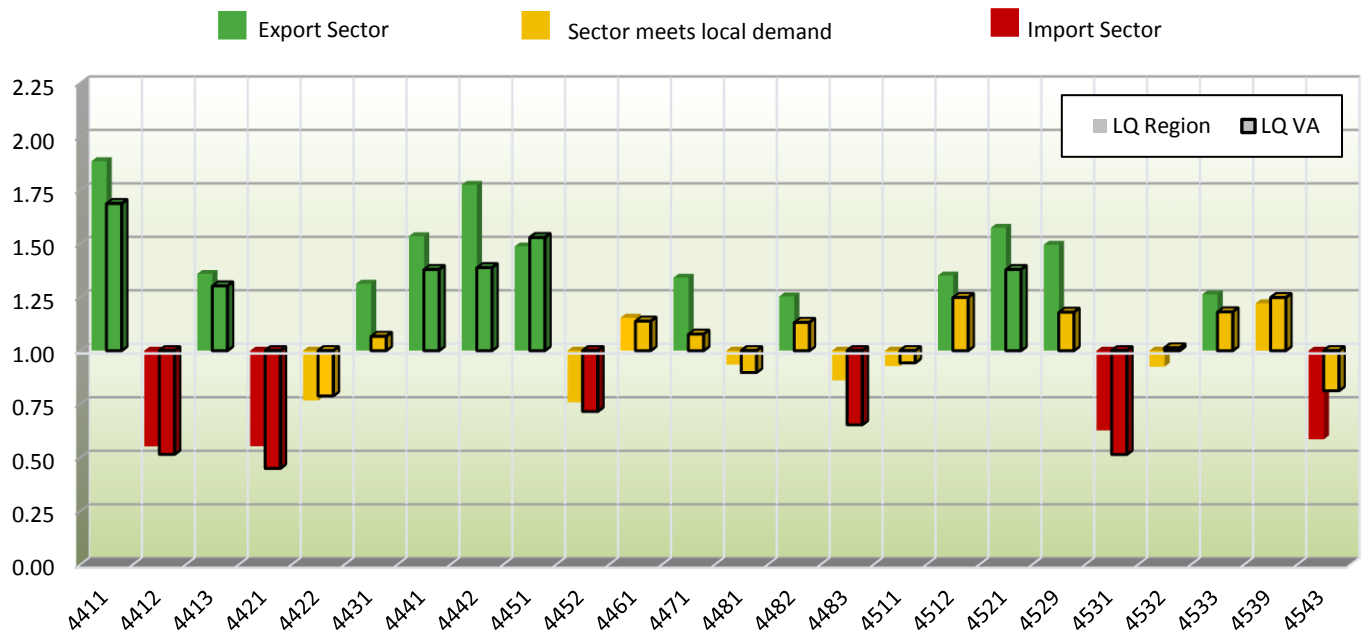
Top Retail Trade Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
4451	Grocery Stores	69	3,982	\$361
4529	Other General Merchandise Stores	45	2,288	\$484
4411	Automobile Dealers	74	2,273	\$1,005
4521	Department Stores	21	1,580	\$335
4441	Building Material and Supplies Dealers	47	1,453	\$573
4471	Gasoline Stations	102	1,098	\$403

Location Quotient Analysis

There were 24 out of 27 reportable industries under the Retail Trade sector. Compared to both the region and the state, six were considered basic or exporting while three were considered non-basic or importing. Six industries have a stronger presence when compared to the region, with LQ scores at the basic level. The remaining industries are generally viewed as being sufficient to meet the local population's demand.

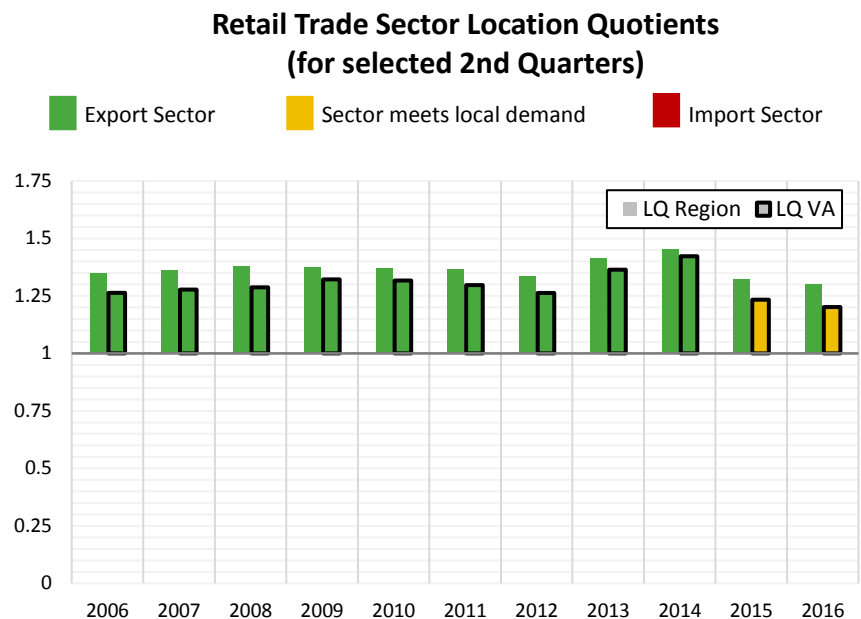
2016 Location Quotient of Retail Trade Sector Industries



4411	Automobile Dealers
4412	Other Motor Vehicle Dealers
4413	Automotive Parts, Accessories, and Tire Store
4421	Department Stores
4422	Home Furnishings Stores
4431	Electronics and Appliance Stores
4441	Building Material and Supplies Dealers
4442	Lawn and Garden Equipment and Supplies Stores
4451	Grocery Stores
4452	Specialty Food Stores
4461	Health and Personal Care Stores
4471	Gasoline Stations
4481	Clothing Stores

4482	Shoe Stores
4483	Jewelry, Luggage, and Leather Goods Stores
4511	Sporting Goods, Hobby, and Musical Instrument
4512	Book Stores and News Dealers
4521	Department Stores
4529	Other General Merchandise Stores
4531	Florists
4532	Office Supplies, Stationery, and Gift Stores
4533	Used Merchandise Stores
4539	Other Miscellaneous Store Retailers
4543	Direct Selling Establishments

Location Quotient Analysis for the Retail Trade Sector finds that it has been relatively stable. This sector is, and traditionally has been, one of the economic drivers of Chesterfield County. It provides goods and services not only to its residents, but to those living in surrounding areas as well. It has consistently been a basic or export sector when compared to both the region and the state. It is to be noted, however, that since the second quarter of 2015, this sector's LQ score compared to the state weakened but is still considered to meet local demand.



Shift Share Analysis

Employment in the Retail Trade sector in Chesterfield County grew slightly slower than the overall average of the state economy. It added 628 jobs. Whereas, if this sector matched the overall growth rate, it only would have added 662 jobs. Chesterfield overall added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Retail Trade	17,789	3.72%	662	628
Countywide			3,717	13,643

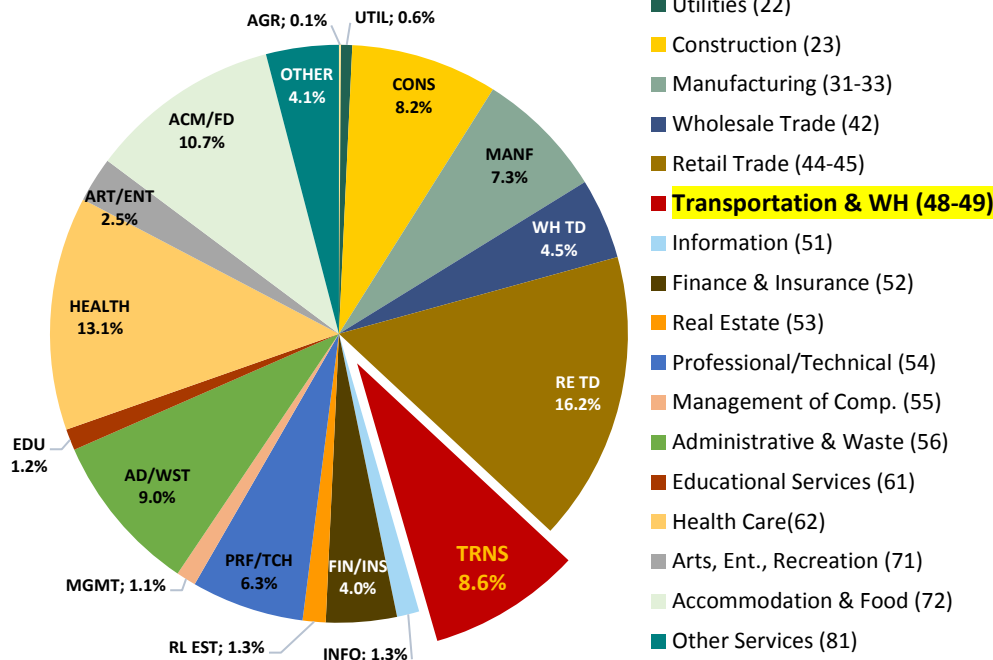
The Wholesale Trade sector remains a competitive industry in the County. Local conditions attributed to the realization of 788 jobs in this sector between 2006 and 2016. This sector experienced employment growth (3.53%) in the County despite the state's declining employment rate (-0.90%) in the same sector during the same period. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Retail Trade	17,789	3.53%	-0.90%	788
Countywide				11,445

TRANSPORTATION & WAREHOUSING SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**

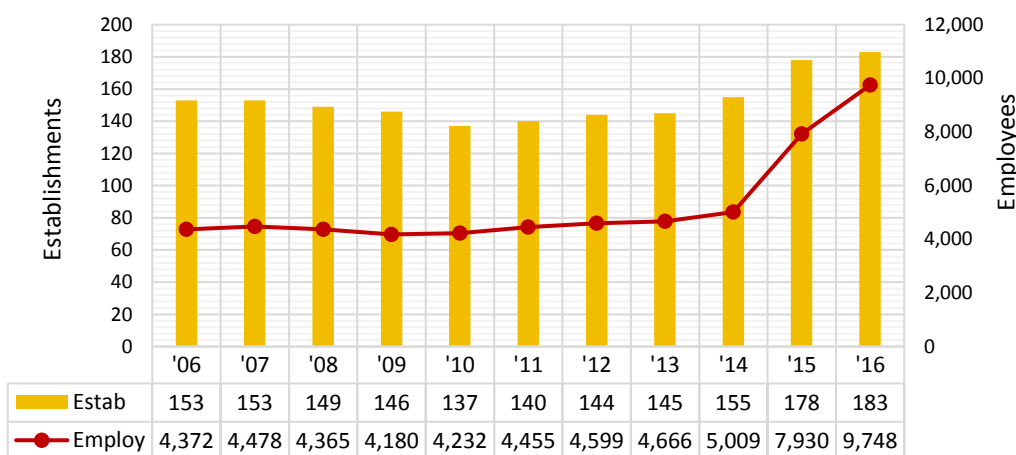


The Transportation & Warehousing sector

includes industries providing:

- Transportation of passengers and cargo
- Warehousing and storage for goods
- Scenic and sightseeing transportation
- Support activities related to modes of transportation

**Transportation & Warehousing Sector Trend
(Private, selected 2nd Quarters)**



Establishments included in this sector use transportation equipment or facilities as a productive asset. The various modes of transportation are air, water, road and pipeline.

TRNS Sector Numbers:

183 establishments

- 2.1% of County's Total

9,748 employed

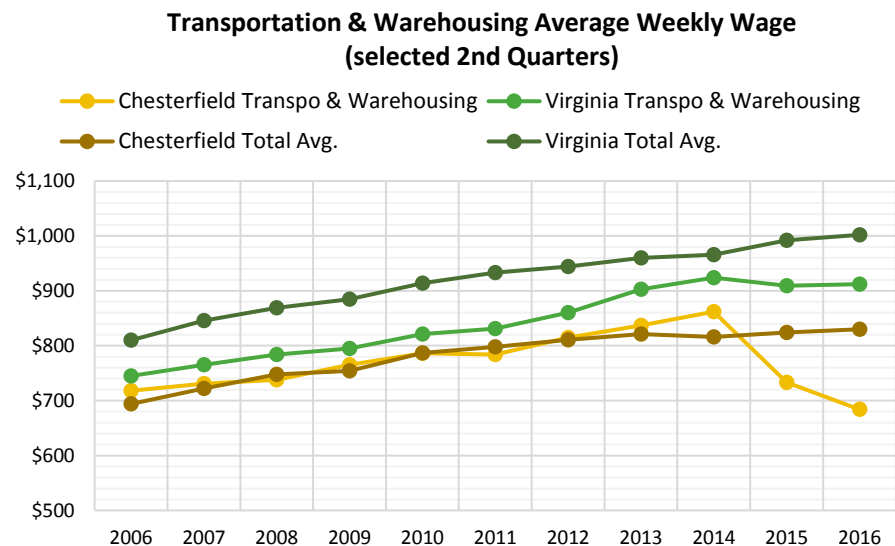
- 8.6% of County's Total
- 123% growth from 2006 employment count

\$684

Average Weekly Wage

In the second quarter of 2016, Chesterfield County has 183 establishments in the Transportation and Warehousing Sector or 2.1% of all the establishments in the County. This is also a 19.6% increase over 2006. The sector employed 9,748 persons (8.6% of the County's total), an increase of almost 123% since 2006. It was the period between the second quarters of 2014 and 2015 where the biggest increase in employment took place, almost 3,000 jobs were added or a 58.3% employment growth from the previous year. However, it is also in this period that the biggest decline in average weekly wage in this sector occurred. Average weekly wage in the second quarter of 2015 went down by approximately 15% compared to the previous year (an average weekly wage decline of \$129).

In the second quarter of 2016, the average weekly wage in this sector for the County is \$684, a decrease of 4.7% over 2006 or an average decline of 0.31%. Virginia's average weekly wage in this sector is \$912, a 22.4% increase over 2006 or an average annual increase of approximately 2.1%. This sector's wage is below the total average weekly wage for the County (\$830; an 19.6% increase over 2006) and the State (\$1,002; a 23.7% increase over 2006).



Job Distribution

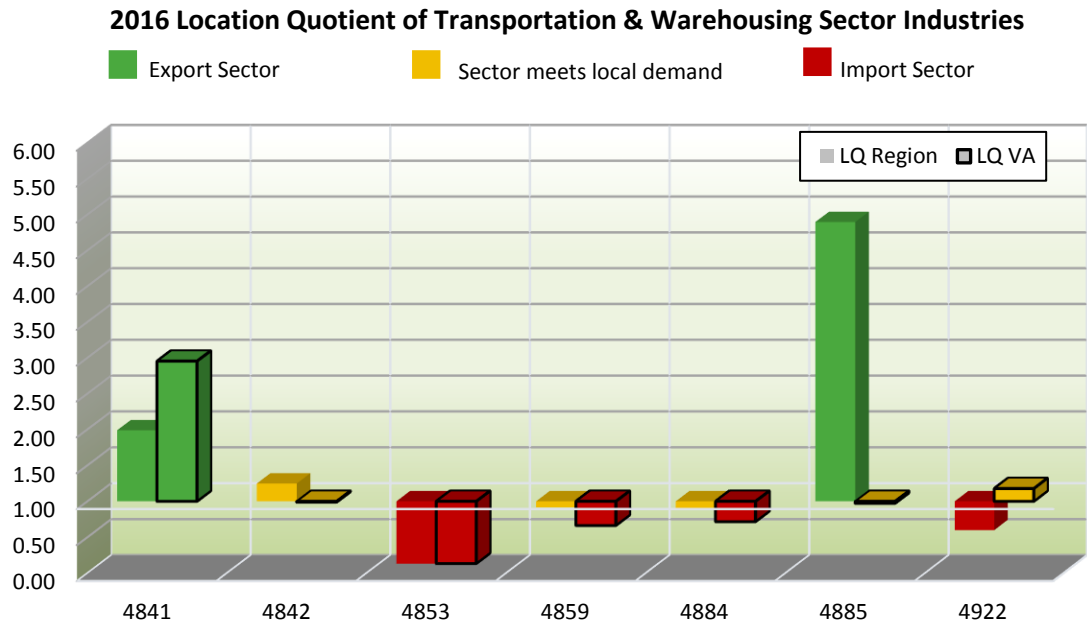
Top Transportation & Warehousing Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
4841	General Freight Trucking	64	1,836	\$983
4842	Specialized Freight Trucking	32	471	\$802
4885	Freight Transportation Arrangement	16	120	\$977
4859	Other Transit and Ground Passenger Transportation	13	86	\$400
4884	Support Activities for Road Transportation	9	78	\$344

Only seven industries under this sector has reportable information from the Virginia Labor Market Information. Due to confidential numbers, this report is limited to analyzing and presenting a fraction of the overall sector. If additional data becomes available, it should be incorporated in future reports to better capture the state of the industries and the sector it belongs to.

The General Freight Trucking Industry (4841) leads this sector in establishment count, employment numbers and average weekly wage. There are 64 establishments in this industry or about 35% of the sector’s total. It employs 1,836 workers or approximately 19% of the total employment in Transportation and Warehousing. It also offers the highest average weekly wage among the reportable industries in this sector.

Location Quotient Analysis

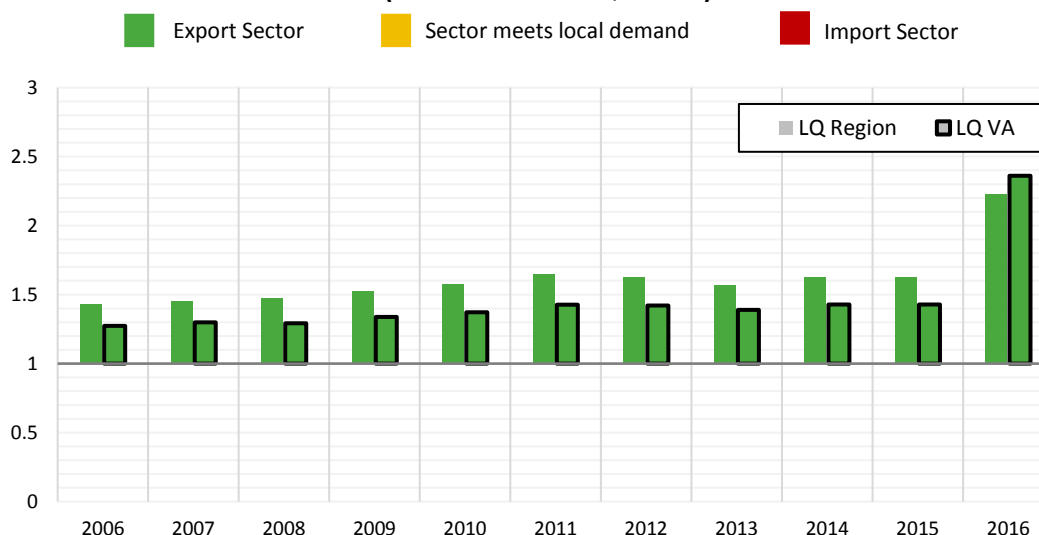


Only one of the seven reportable industries (General Freight Trucking; 4841) in the Transportation and Warehousing sector is considered basic or exporting compared to both the region and the state. On the other hand, the Taxi and Limousine Service Industry (4853) is a non-basic or importing industry. The Freight Transportation Arrangement Industry (4885) is a basic industry compared to the regional level employment, with a Location Quotient score of approximately 4.9.

4841	General Freight Trucking
4842	Specialized Freight Trucking
4853	Taxi and Limousine Service
4859	Other Transit and Ground Passenger Transportation
4884	Support Activities for Road Transportation
4885	Freight Transportation Arrangement
4922	Local Messengers and Local Delivery

The location quotient analysis trend for the Transportation and Warehousing sector finds that this sector has been strengthening. This sector can be viewed as a driver of the local economy with a percentage of its goods and services ‘exported’ and meeting the demand for areas outside of the county.

Transportation & Warehousing Sector Location Quotients (for selected 2nd Quarters)



Shift Share Analysis

Employment in the Transportation and Warehousing sector in Chesterfield County grew quicker than the overall average of the state economy. It added 5,376 jobs. If this sector matched the overall growth rate, it only would have added 163 jobs. Chesterfield overall added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Transportation Warehousing	4,372	3.72%	163	5,376
Countywide			3,717	13,643

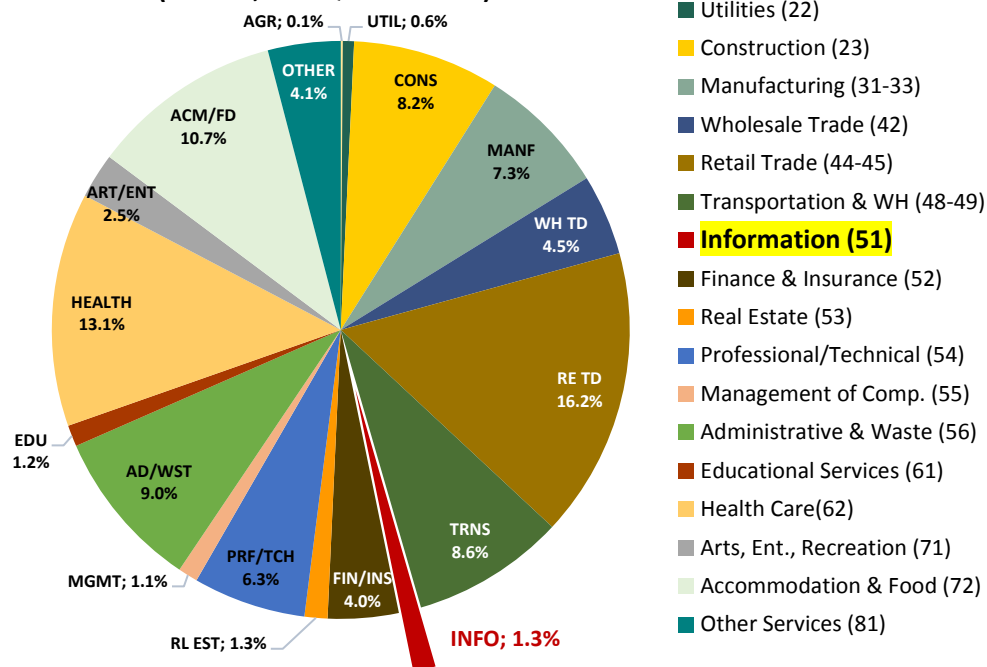
The Transportation and Warehousing sector remains a competitive industry in the County. Local conditions attributed to the realization of 4,961 jobs in this sector between 2006 and 2016. This sector experienced employment growth (122.96%) in the County while the state only experienced a 9.48% growth. Chesterfield County, overall, is a highly competitive jurisdiction within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Transportation Warehousing	4,372	122.96%	9.48%	4,961
Countywide				11,445

INFORMATION SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The Information sector

includes establishments engaged in the following processes:

- Producing and distributing information and cultural products
- Providing the means to transmit or distribute these products as well as data or communications
- Processing data

INFO Sector Numbers:

97 establishments

- 1.1% of County's Total
- 33.9% decline from 2006 establishment count

1,423 employed

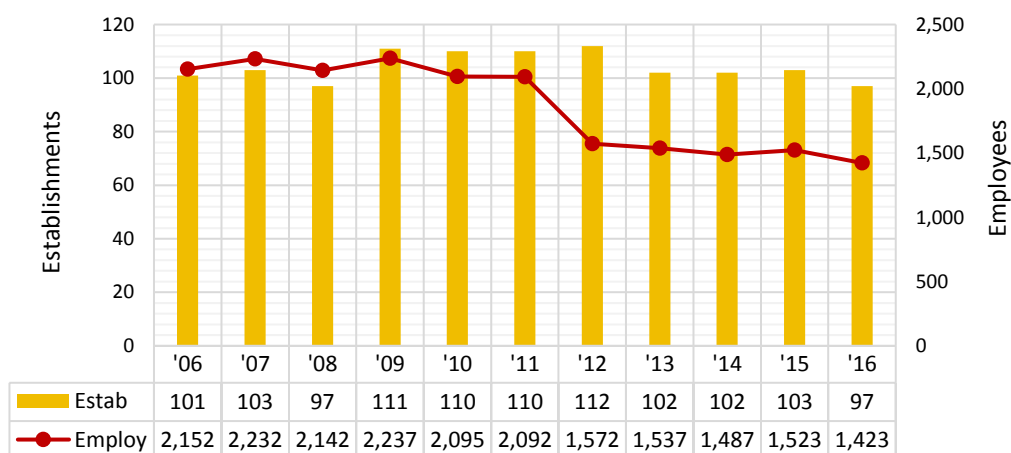
- 1.3% of County's Total
- 4% decline from 2006 employment count
- 6.6% decline from previous year's employment numbers

\$1,107

Average Weekly Wage

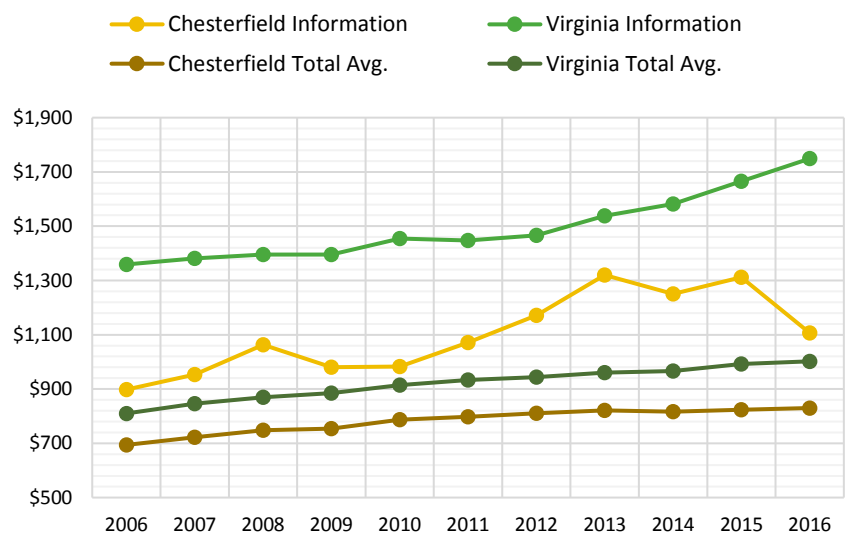
- 15.6% decline from previous year's average wage

Information Sector Trend (Private, selected 2nd Quarters)



The average weekly wage of a worker in the Information sector in Chesterfield was \$1,107 in the second quarter of 2016. This is a 15.6% decrease from the previous year's average weekly wage. Between 2006 and 2016, there was a 23.3% wage increase or an average annual increase of 2.5%. The Virginia wage was \$1,749, an increase of 28.7% over 2006. Chesterfield's total average weekly wage was \$830, an increase of 19.6% over 2006, while Virginia's total average weekly wage was \$1,002, an increase of 23.7% over 2006.

Information Average Weekly Wage (selected 2nd Quarters)



Job Distribution

Nearly 23% of Information sector workers are employed in the Wired Telecommunications Carriers industry (5171). Almost 20% of all the establishments in the Information sector belongs to the Other Information Services industry (5191). The Newspaper, Periodical, Book and Directory Publishers industry (5111), however, had the sector's highest average weekly wage with \$1,880.

**Top Information Sector Industries by Employment
(Private, 2nd Quarter 2016)**

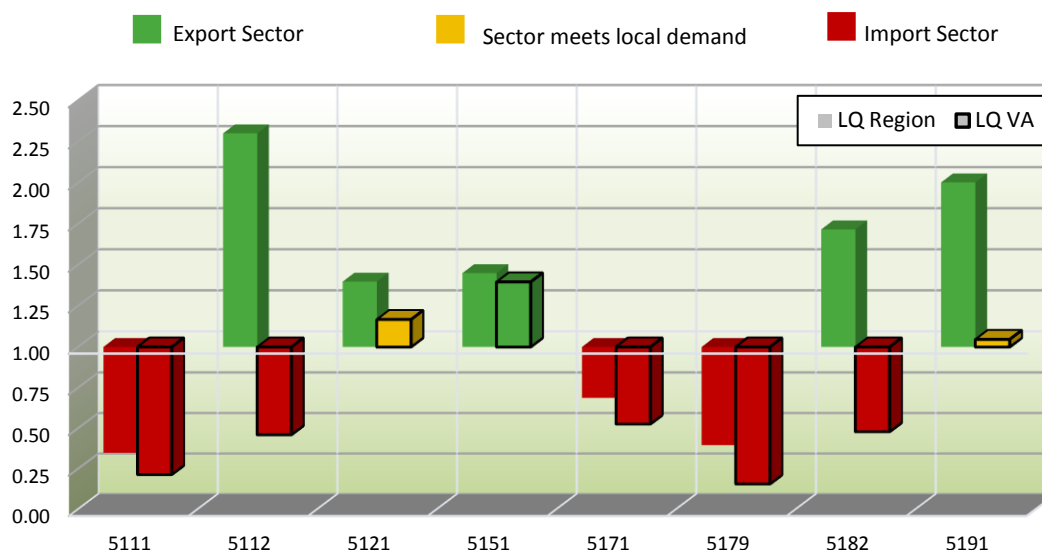
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
5171	Wired Telecommunications Carriers	14	319	\$1,503
5151	Radio and Television Broadcasting	7	275	\$1,029
5121	Motion Picture and Video Industries	6	244	\$230
5182	Data Processing, Hosting, and Related Service	15	193	\$962
5191	Other Information Services	19	164	\$1,306

Location Quotient Analysis

Of the eight reportable Information sector industry groups in Chesterfield, only the Radio and Television Broadcasting industry (5151) was considered basic, or exporting, when compared with both the state and the region. The Software Publishers (5112), Motion Picture and Video Industries (5121), Data Processing, Hosting and Related Services (5182) and the Other Information Services (5191) Industries were

representative of the county at the regional level. Basic industries are drivers of the local economy, typically bringing in money from surrounding jurisdictions for services provided.

2016 Location Quotient of Information Sector Industries

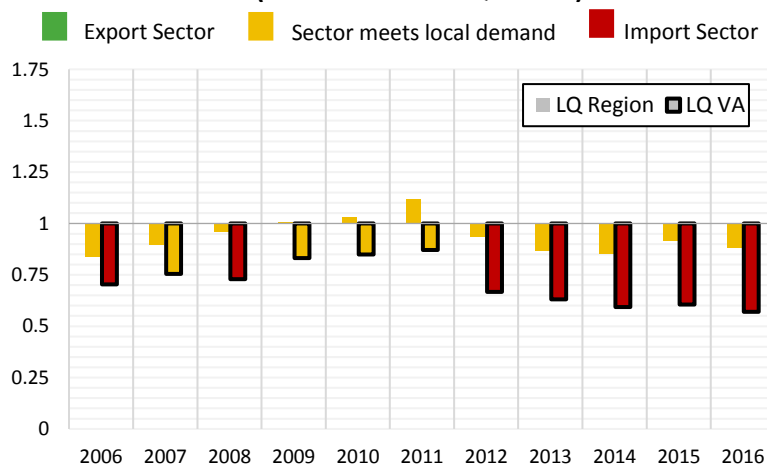


5111	Newspaper, Periodical, Book and Directory Publishers
5112	Software Publishers
5121	Motion Picture and Video Industries
5151	Radio and Television Broadcasting

5171	Wired Telecommunications Carriers
5179	Other Telecommunications
5182	Data Processing, Hosting and Related Services
5191	Other Information Services

Location quotient analysis for Chesterfield County's Information sector mostly meets the local demand, especially when compared to the regional employment level. It was strengthening until 2011 but weakened significantly since then especially when County employment is compared to the state employment level in this sector. The weakness of this sector in the County suggests that the sector's goods and services are met, at least partially, by businesses outside of the county.

Information Sector Location Quotients (for selected 2nd Quarters)



Shift Share Analysis

Employment in the Information sector in Chesterfield County grew slower than the overall average of the state economy. The sector lost 729 jobs. If this sector matched the overall growth rate, it would have added 80 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Information	2,152	3.72%	80	-729
Countywide			3,717	13,643

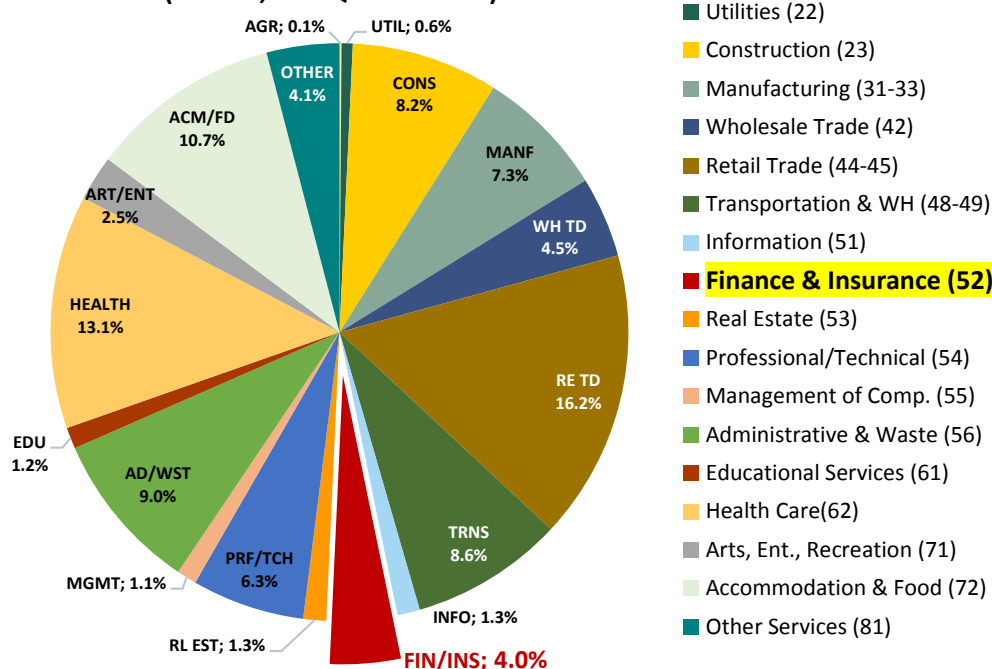
The Information sector has lost competitiveness in the County. Local conditions attributed to the non-realization of 176 jobs in this sector between 2006 and 2016. This sector's employment rate in the County declined by 33.9% whereas the sector's employment rate for Virginia only declined by 25.7%. However, the Industrial Mix component for this sector indicates that it contributed to the loss of 633 jobs, due to the slow growth experienced by the sector compared to the state. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Information	2,152	-33.88%	-25.71%	-176
Countywide				11,445

FINANCE & INSURANCE SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Finance and Insurance sector** comprises establishments primarily engaged in:

- Financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in
- Facilitation financial transactions.

FIN/INS Sector Numbers:

522 establishments

- 6.1% of County's Total
- 3% decline from 2006 establishment count

4,492 employed

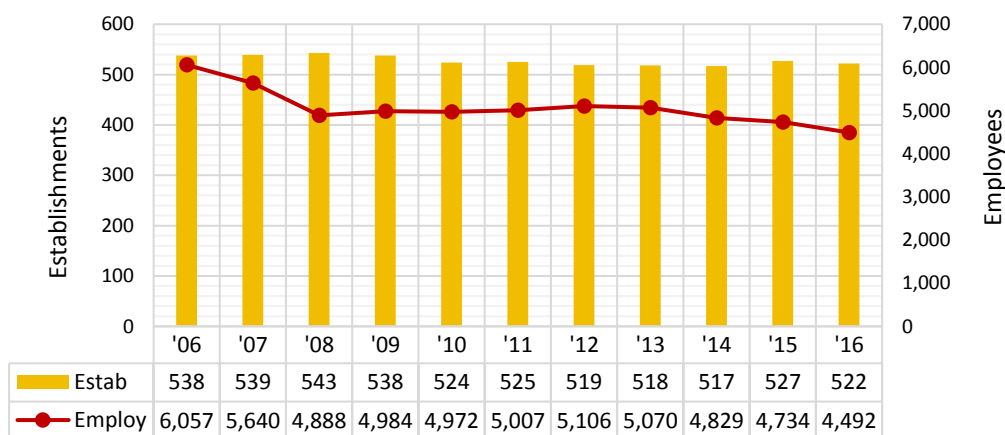
- 4% of County's Total
- 26% decline from 2006 employment count
- 5.1% decline from previous year's employment numbers

\$1,290

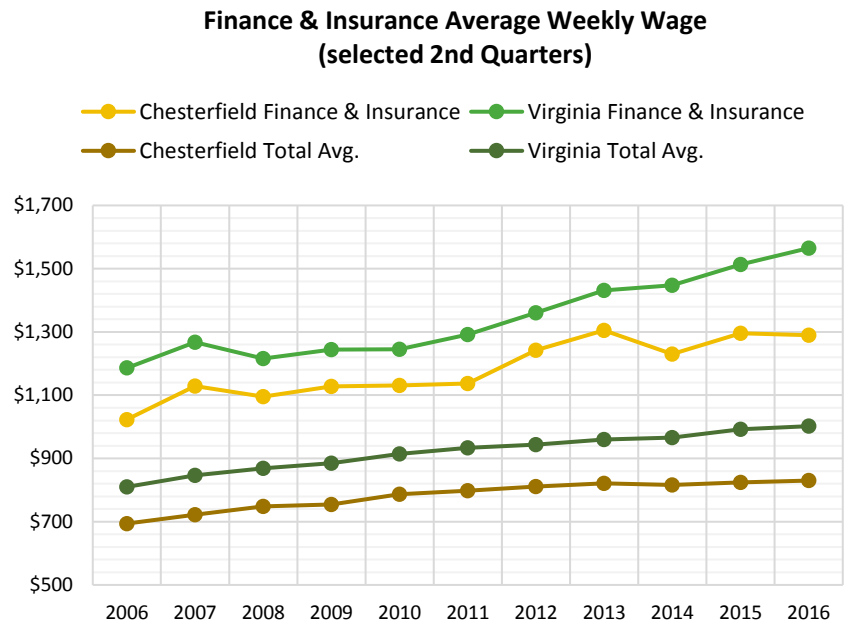
Average Weekly Wage

- 26.1% growth from 2006 average weekly wage
- 5.1% decline from previous year's wage

Finance & Insurance Sector Trend (Private, selected 2nd Quarters)



The average weekly wage of a worker in the Finance and Insurance sector was \$1,290 during the second quarter of 2016. This represents an increase of 26.1% over 2006, or an average annual increase of 2.46%. However, this was approximately 0.5% lower than the previous year's average weekly wage. The Virginia wage for this sector was \$1,565 for the same quarter, which represents an increase of 32% since 2006, or an average annual increase of 2.9%. Average weekly wage in this sector is higher than Chesterfield's total average weekly wage (\$830) and Virginia's total average weekly wage (\$1,002).



Job Distribution

In the second quarter of 2016, approximately 31% of Finance and Insurance sector workers in Chesterfield County were employed in the Nondepository Credit Intermediation Industry (5222). The third largest employer in this sector, the Agencies, Brokerages, and Other Insurance Related Activities Industry (5242) which accounted for 21.3% of sector employment, also has the most number of establishments in this sector (215 establishments or 41.1% of the total establishments count in the sector) and offered the second highest average weekly wage (\$1,761). It is the Other Financial Investment Activities Industry (5239) that had the sector's highest average weekly wage at \$2,240.

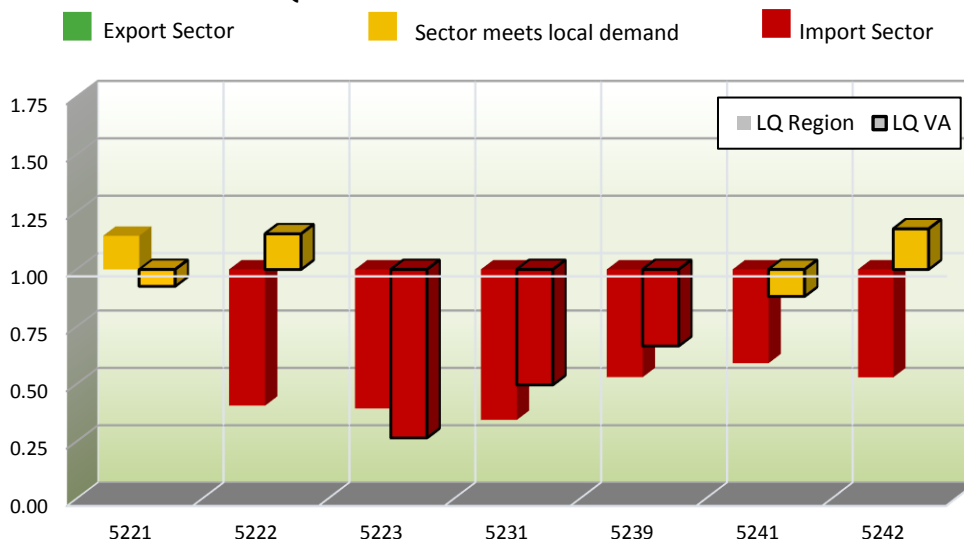
Top Finance & Insurance Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
5222	Nondepository Credit Intermediation	44	1,373	\$1,054
5221	Depository Credit Intermediation	115	1,034	\$911
5242	Agencies, Brokerages, and Other Insurance Related Activities	215	957	\$1,761
5241	Insurance Carriers	48	786	\$1,376
5239	Other Financial Investment Activities	53	183	\$2,240

Location Quotient Analysis

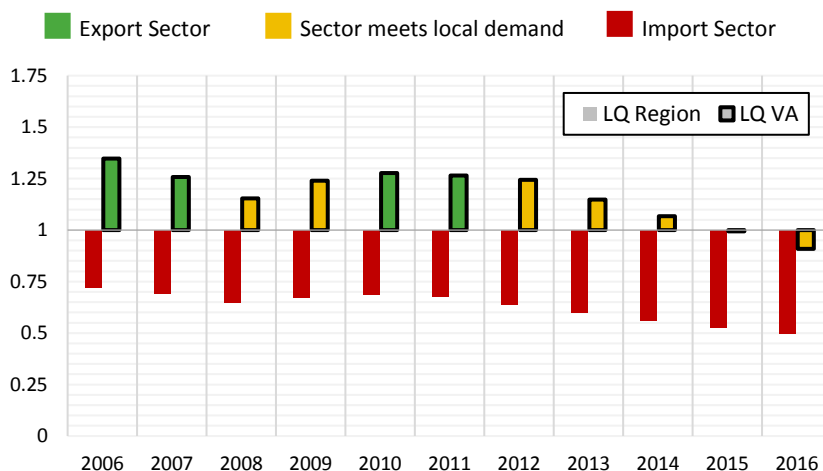
None of the seven reportable Finance and Insurance sector industries in Chesterfield were considered basic, or exporting, when compared with both the state and the region. Only the Depository Credit Intermediation Industry (5221) can be considered to meet the local demand when compared to both the state and the regional employment levels. The rest, as reflected by lower bars, suggests weaker industry groups in the local economy.

2016 Location Quotient of Finance & Insurance Sector Industries



5221	Depository Credit Intermediation	5239	Other Financial Investment Activities
5222	Nondepository Credit Intermediation	5241	Insurance Carriers
5223	Activities Related to Credit Intermediation	5242	Agencies, Brokerages and Other Insurance Related Activities
5231	Securities and Commodity Contracts Intermediation and Brokerage		

Finance & Insurance Sector Location Quotients (for selected 2nd Quarters)



Overall, this sector has been declining in strength. It was weaker in comparison to the region. When compared to the state employment level, this sector declined from 2006-2008 but strengthened until 2011. For 2010 and 2011, the sector was considered basic or exporting. However, it has continued to weaken since then and lose its importance in the context of the state.

Shift Share Analysis

Employment in the Finance and Insurance sector in Chesterfield County grew slower than the overall average of the state economy. The sector lost 1,565 jobs. If this sector matched the overall growth rate, it would have added 225 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Finance and Insurance	6,057	3.72%	225	-1,565
Countywide			3,717	13,643

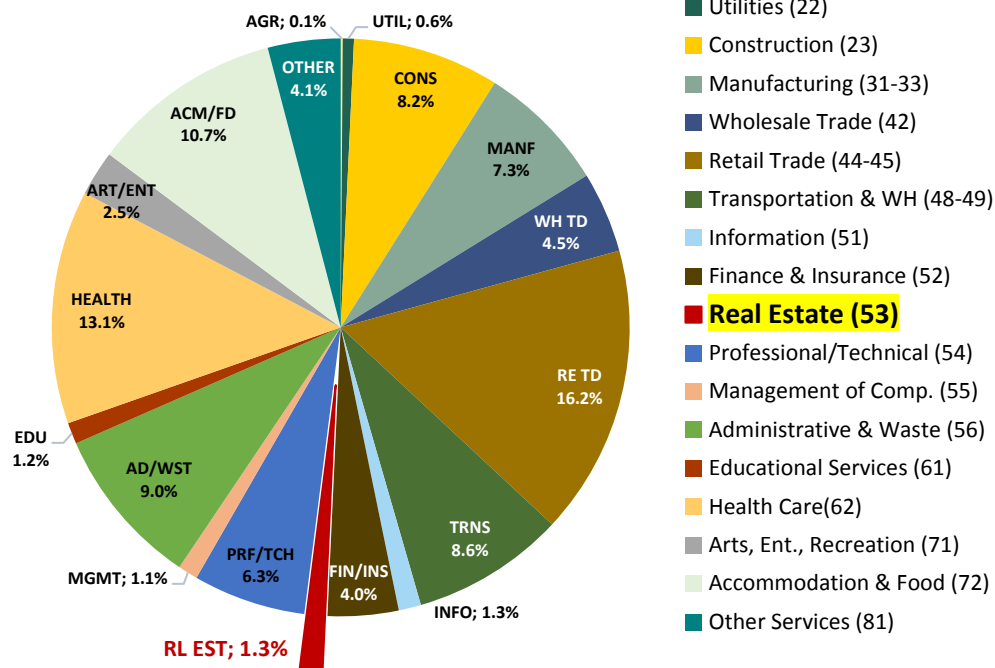
Between 2006 and 2016, the Finance and Insurance sector has lost competitiveness in the County. Local conditions attributed to the non-realization of 1,570 jobs in this sector. This sector's employment rate in the County declined by 25.8% when Virginia's Finance and Insurance sector grew by 0.08% in the same period. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Finance and Insurance	6,057	-25.84%	0.08%	-1,570
Countywide				11,445

REAL ESTATE AND RENTAL & LEASING SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Real Estate and Rental & Leasing sector** comprises establishments primarily engaged in:

- Renting, leasing, or otherwise allowing the use of tangible or intangible assets (represents majority of establishments)
- Providing related services

RL EST Sector Numbers:

303 establishments

- 3.5% of County's Total
- 2.4% growth from 2006 establishment count

1,458 employed

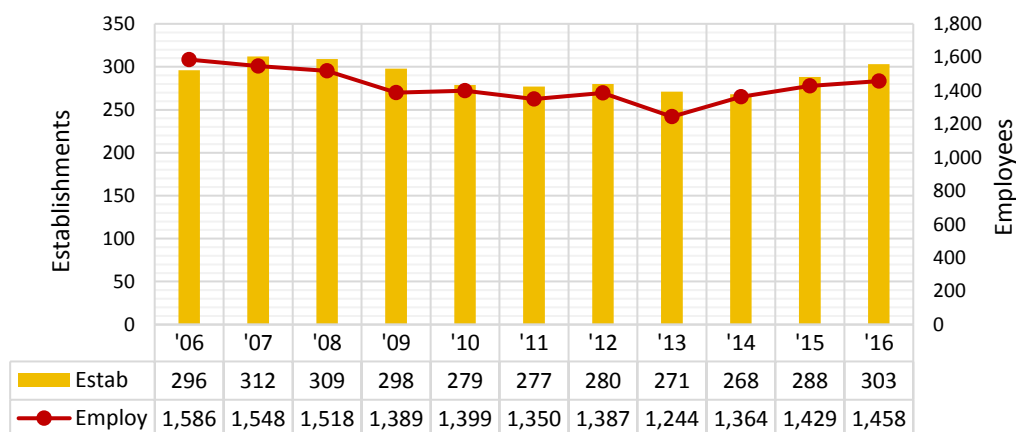
- 1.3% of County's Total
- 8.1% decline from 2006 employment count
- 2% growth from previous year's employment numbers
- 0.7% average annual loss (2006-2016)

\$882

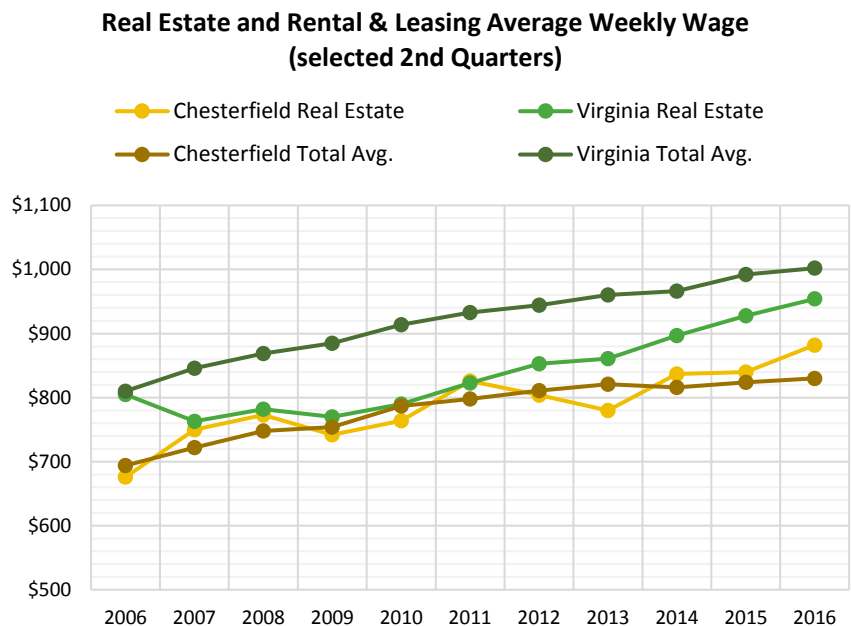
Average Weekly Wage

- 30.5% growth from 2006 average weekly wage

**Real Estate and Rental & Leasing Sector Trend
(Private, selected 2nd Quarters)**



In the second quarter of 2016, the average weekly wage of a worker in the Real Estate sector in the County was \$882. This was an increase of 30.5% over the county's 2006 average of \$676; or an average annual increase of 2.8%. Virginia's Real Estate sector average weekly wage in 2016 was \$954 and this was an 18.5% growth over 200, or an average annual increase of nearly 1.8%. The County's overall average weekly wage was \$830 (increased by 19.6% over 2006) and the State's overall average weekly wage was \$1,002 (increased by 23.7% over 2006).



Job Distribution

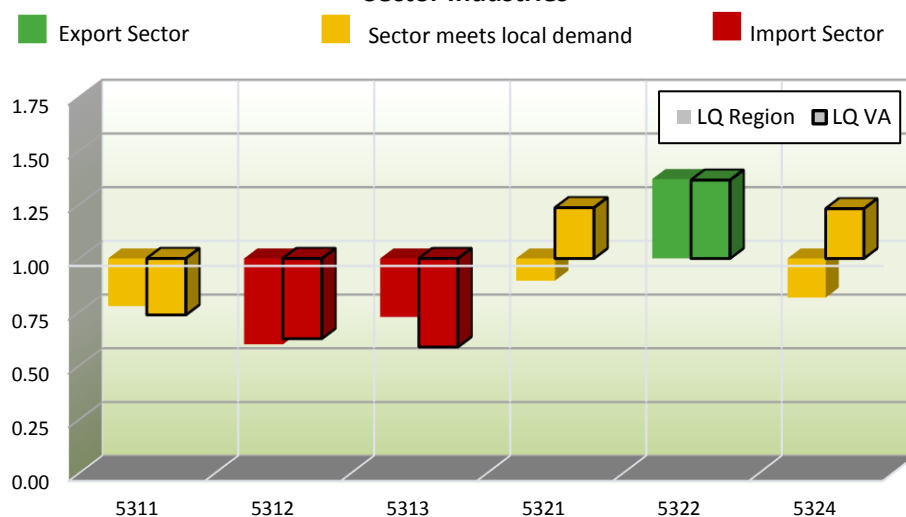
In the second quarter of 2016, 25.1% of the Real Estate and Rental and Leasing Sector workers in the County were employed in the Activities Related to Real Estate (5313). It had 88 establishments or 29.1% of the total establishments count in the sector, only preceded by the Offices of Real Estate Agents and Brokers Industry (5312) with 93 establishments or 30.7% of this sector's establishments. On the other hand, the industry that has the highest average weekly wage in this sector was the Commercial and Industrial Machinery and Equipment Rental and Leasing (5324) at \$1,176.

Top Real Estate and Rental & Leasing Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
5313	Activities Related to Real Estate	88	366	\$1,153
5311	Lessors of Real Estate	71	352	\$780
5321	Automotive Equipment Rental and Leasing	21	226	\$692
5312	Offices of Real Estate Agents and Brokers	93	211	\$857
5322	Consumer Goods Rental	15	187	\$625

Location Quotient Analysis

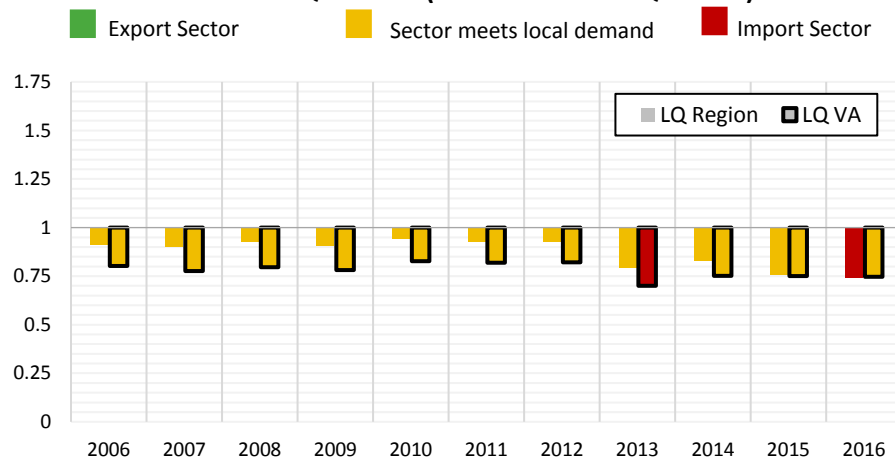
2016 Location Quotient of Real Estate and Rental & Leasing Sector Industries



Of the six reportable Real Estate sector industry groups in Chesterfield, the Consumer Goods Rental Industry (5322) was considered basic, or exporting. There were two industries that were non-basic or importing, namely the Offices of Real Estate Agents and Brokers (5312) and Activities Related to Real Estate (5313). Noticeably, these industries had the most establishments and most workers, respectively, in this sector. Basic industries are drivers of the local economy, typically bringing in money from surrounding jurisdictions for services provided.

5311	Lessor of Real Estate
5312	Offices of Real Estate Agents and Brokers
5313	Activities Related to Real Estate
5321	Automotive Equipment Rental and Leasing
5322	Consumer Goods Rental
5324	Commercial and Industrial machinery and Equipment Rental and Leasing

Real Estate and Rental & Leasing Sector Location Quotients (for selected 2nd Quarters)



The Location Quotient trend for the Real Estate and Rental and Leasing Sector finds that this sector's industries are considered sufficient to meet the needs of the local population. It is neither a basic (exporting) sector nor a non-basic (importing sector).

Shift Share Analysis

Employment in the Real Estate and Rental and Leasing sector in Chesterfield County grew slower than the overall average of the state economy. If this sector matched the overall growth rate, it would have added 59 jobs, but instead the sector lost 128 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Real Estate and Rental & Leasing	1,586	3.72%	59	-128
Countywide			3,717	13,643

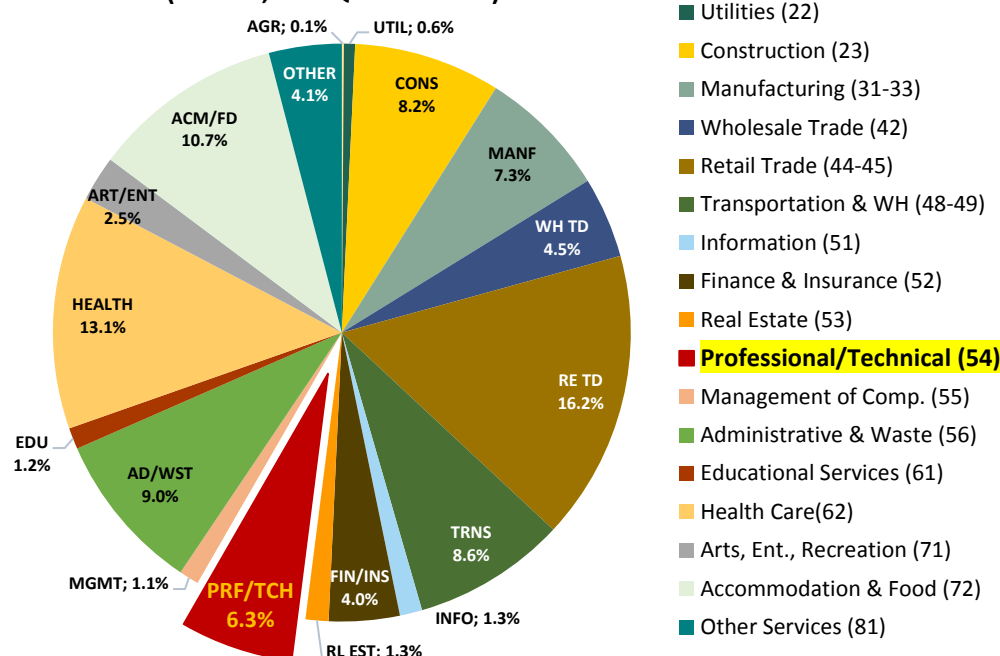
The Real Estate and Rental and Leasing sector is a competitive industry in Chesterfield County. Local conditions attribute to the realization go 31 jobs between 2006 and 2016, when the sector in both the County and Virginia both experienced declining employment rates. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Real Estate and Rental & Leasing	1,586	-8.07%	-10.05%	31
Countywide				11,445

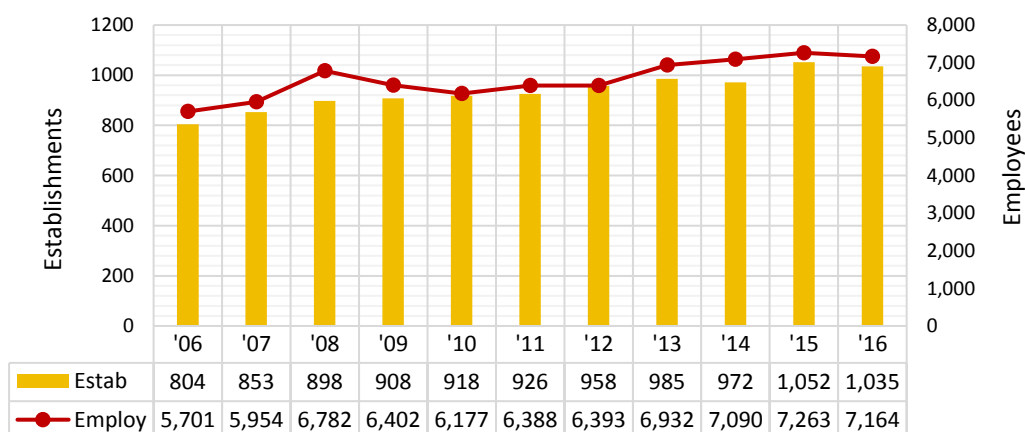
PROFESSIONAL & TECHNICAL SERVICES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Professional and Technical Services** sector consists of establishments specializing in performing professional, scientific and technical activities that require high degree of expertise and training. Specialization varies based on expertise. This sector's establishments provide services to clients in different industries and households.

**Professional, Scientific and Technical Services Sector Trend
(Private, selected 2nd Quarters)**



PRF/TCH Sector Numbers:

1,035 establishments

- 12.1% of County's Total
- 28.7% growth from 2006 establishment count
- 1.6% decline from previous year

7,164 employed

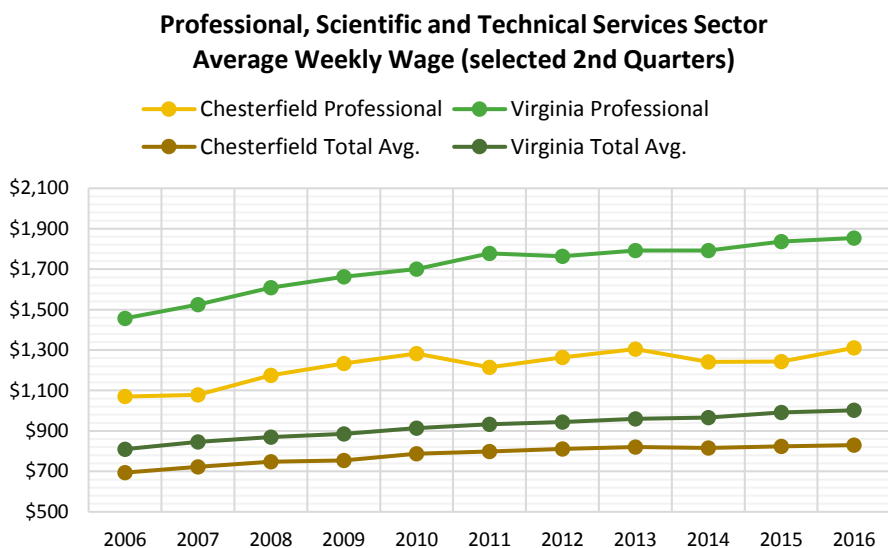
- 6.3% of County's Total
- 25.7% growth from 2006 employment count
- 1.4% decline from previous year

\$1,311

Average Weekly Wage

- 22.5% growth over 2006

The average weekly wage of a worker in the Professional, Scientific, and Technical Services sector in Chesterfield County was \$1,311 in the second quarter of 2016, 22.5% increase over 2006 or an average annual increase of 2.1%. The Virginia wage in this sector was \$1,854, an increase of 27.3% over 2006 or an average annual increase of 2.5%. This sector's average weekly wage is higher than the state (\$1,002) and the county's (\$830) overall average weekly wages.



Job Distribution

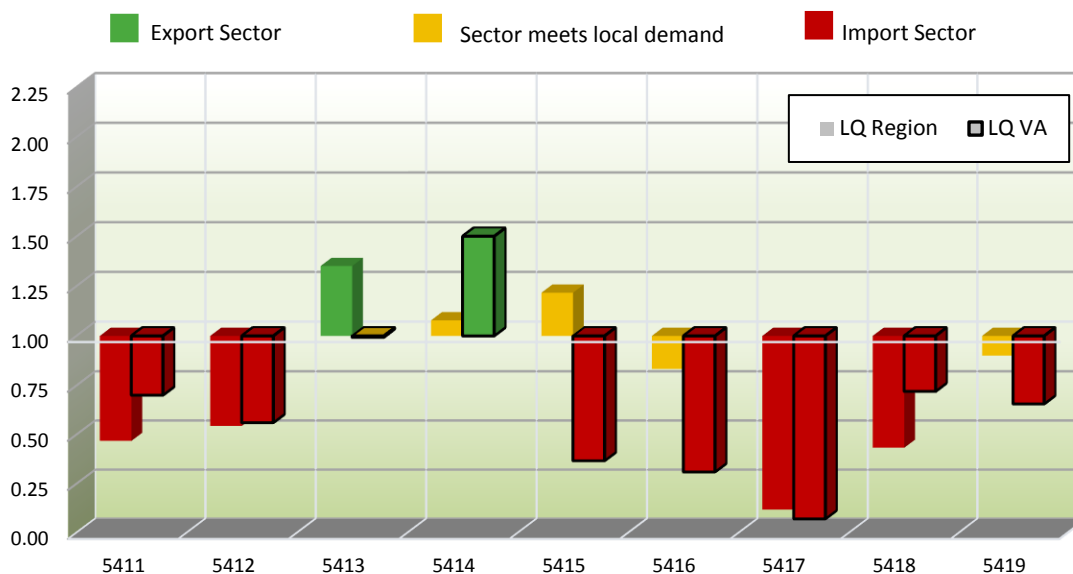
Nearly 29% of Professional sector workers are employed in the Computer Systems Design and Related Services Industry (5415) in the second quarter of 2016. This industry also has the most establishments in this sector. This industry's 222 establishments account for 21.5% of all the establishments in the Professional sector. The highest paying industry in this sector was the Scientific Research and Development Services (5417) at \$1,599 average per week, which happens to be the smallest industry in the Professional sector in both employment (59 workers or 0.8% of sector's total) and establishment (12 establishments or 1.2% of sector's total) size.

Top Professional, Scientific & Technical Services Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
5415	Computer Systems Design and Related Services	222	2,064	\$1,405
5413	Architectural, Engineering, and Related Services	144	1,892	\$1,504
5416	Management, Scientific, and Technical Consulting Services	211	814	\$1,234
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	141	728	\$1,411
5411	Legal Services	125	637	\$1,183

Location Quotient Analysis

2016 Location Quotient of Professional, Scientific and Technical Services Sector Industries

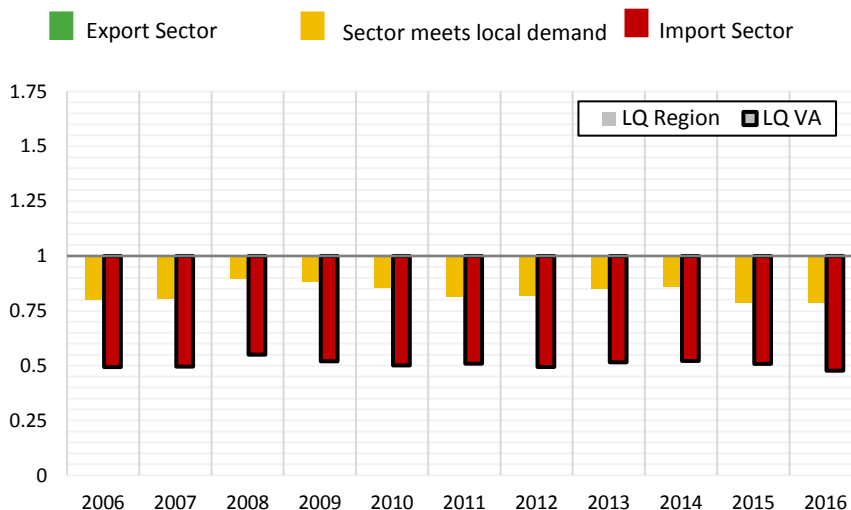


5411	Legal Services
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services
5413	Architectural, Engineering, and Related Services
5414	Specialized Design Services
5415	Computer Systems Design and Related Services

5416	Management, Scientific, and Technical Consulting Services
5417	Scientific Research and Development Services
5418	Advertising, Public Relations, and Related Services
5419	Other Professional, Scientific, and Technical Services

None of the nine reportable Professional, Scientific and Technical Services sector industries were considered basic or exporting compared to the region and the state. The Architectural, Engineering, and Related Services Industry (5413) was basic when compared to the regional employment level while the Specialized Design Services (5414) was basic when compared to the state employment level. Four of the nine industries were non-basic or importing. Of these four, the Scientific Research and Development

Professional, Scientific and Technical Services Sector Location Quotients (for selected 2nd Quarters)



Services Industry (5417) received the lowest Location Quotient (LQ) score at the region and state context. It is to be noted that this is the highest paying industry in this sector. Basic industries are drivers of the local economy, typically bringing in money from surrounding jurisdictions for services provided. In general, the higher the bar means the stronger the industry group in the local economy. Whereas, the lower the bar, the weaker the industry group in the local economy.

Location quotient analysis of the Professional sector finds that this sector remains a relatively weak sector. It is weaker in comparison to the state. However, when compared to the region, this sector meets most of the services being consumed by the local population and some services 'imported' from businesses in other jurisdictions.

Shift Share Analysis

Employment in the Professional sector in Chesterfield County outpaced the growth of the overall average of the state economy. The sector added 1,463 jobs between 2006 and 2016. If this sector matched the overall growth rate, it would have only added 212 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Professional, Scientific & Technical Services	5,701	3.72%	212	1,463
Countywide			3,717	13,643

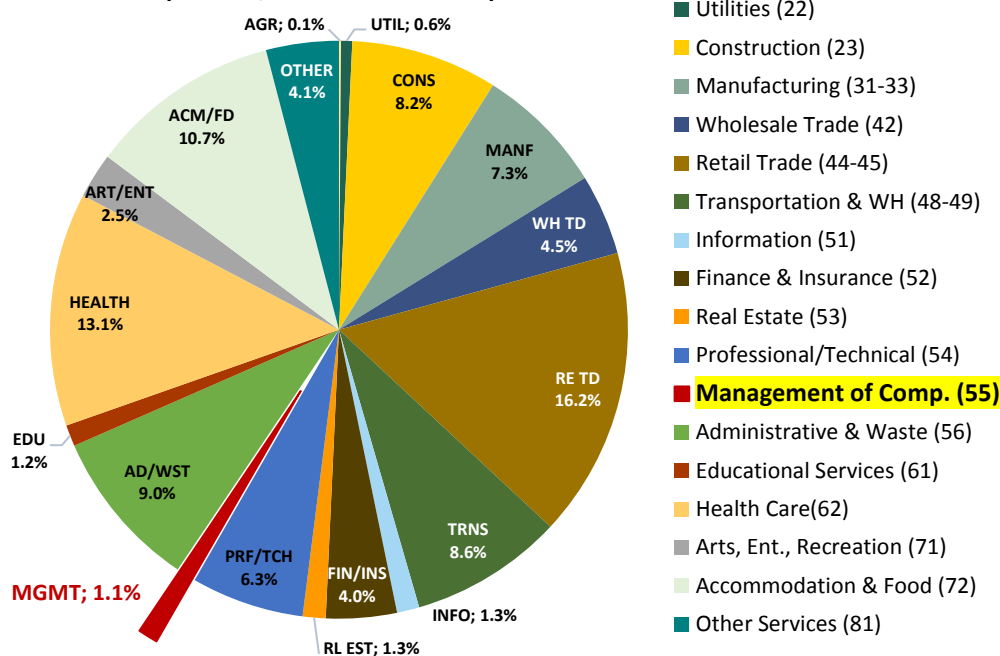
Between 2006 and 2016, local conditions attributed to the realization of 415 jobs in the Professional sector. This sector's County employment grew faster at 25.7%, compared to the state's employment rate in the same sector at 18.4% during the same period. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Professional, Scientific & Technical Services	5,701	25.66%	18.39%	415
Countywide				11,445

MANAGEMENT OF COMPANIES & ENTERPRISES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Management of Companies and Enterprises** sector consists of establishments that hold the securities of companies for the purpose of:

- Owning a controlling interest or influencing management decisions
- Administering, overseeing and managing establishments of the company or enterprise
- Undertaking strategic or organizational planning and decision-making role of the company.

MGMT Sector Numbers:

66 establishments

- 0.8% of County's Total
- 15.8% growth from 2006 establishment count

1,257 employed

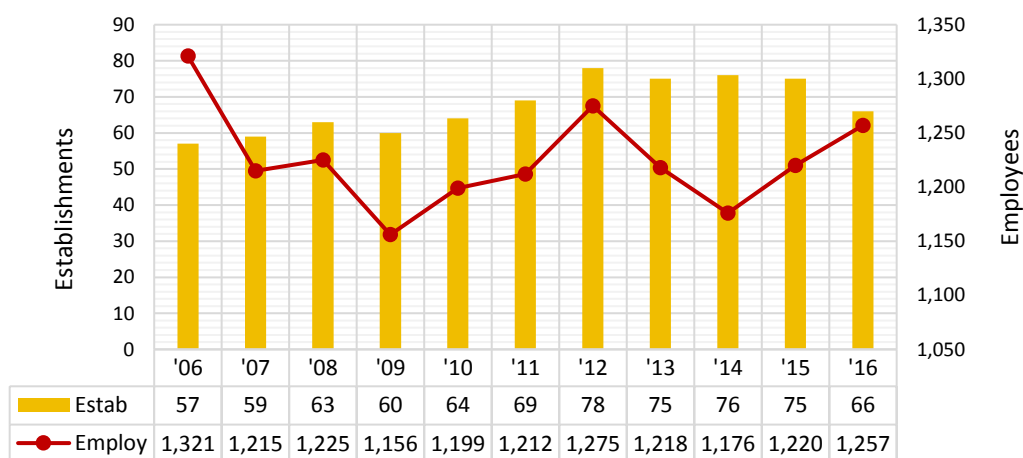
- 1.1% of County's Total
- 4.8% decline from 2006 employment count

\$2,213

Average Weekly Wage

- 51.6% growth over 2006

**Management of Companies & Enterprises Sector Trend
(Private, selected 2nd Quarters)**

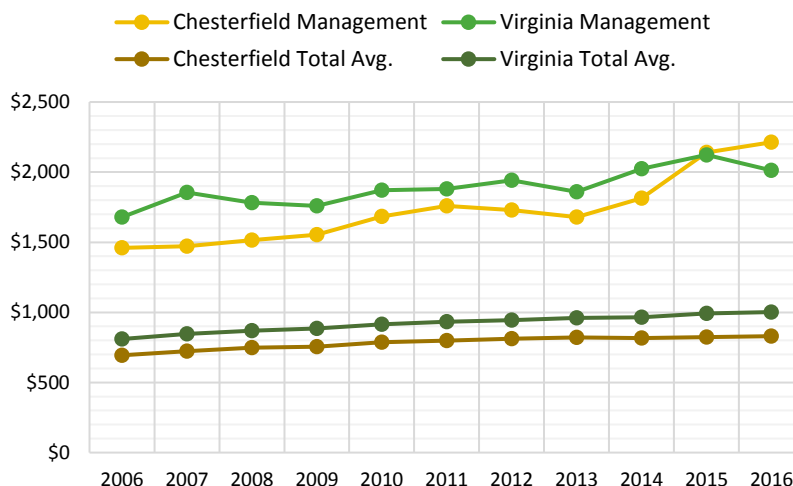


In the second quarter of 2016, Chesterfield County has 66 establishments in the Management sector, which represents less than one percent of the County's total establishments. This was a 15.8% growth from 2006, but compared to the previous year, this was a 12% decrease as it lost nine businesses. This sector employs 1,257 workers, or 1.1% of the County's total employment. This was a 4.8% decline over 2006 or an average annual decline of 0.4%. However, this was a 3% increase from the previous year's employment numbers, as the sector added 37 jobs in the one-year period.

Management of Companies and Enterprises offer the highest average weekly wage in the County. In the second quarter of 2016, the County's average weekly wage for this sector (\$2,213) was higher than Virginia's Management sector wage (\$2,013), the County's total weekly wage (\$803) and State's total weekly wage (\$1,002).

Chesterfield Management sector wage grew by 51.6% over 2006 or an annual average increase of 4.4%. Virginia's Management sector wage only grew by 19.9% or an annual average increase of nearly 2%.

**Management of Companies Sector Average Weekly Wage
(selected 2nd Quarters)**



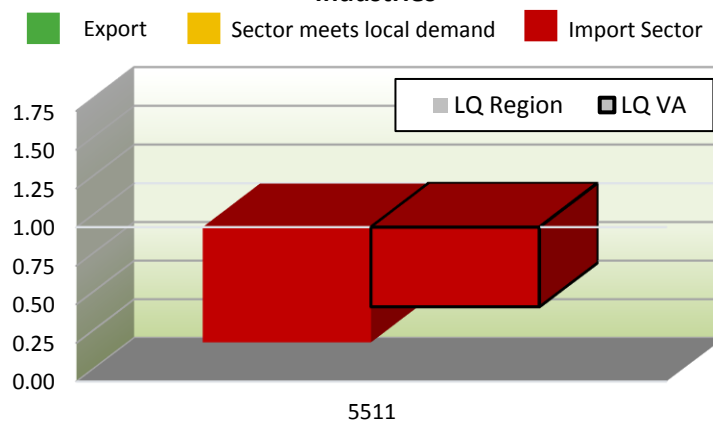
Job Distribution

**Top Management of Companies & Enterprises Sector Industries by Employment
(Private, 2nd Quarter 2016)**

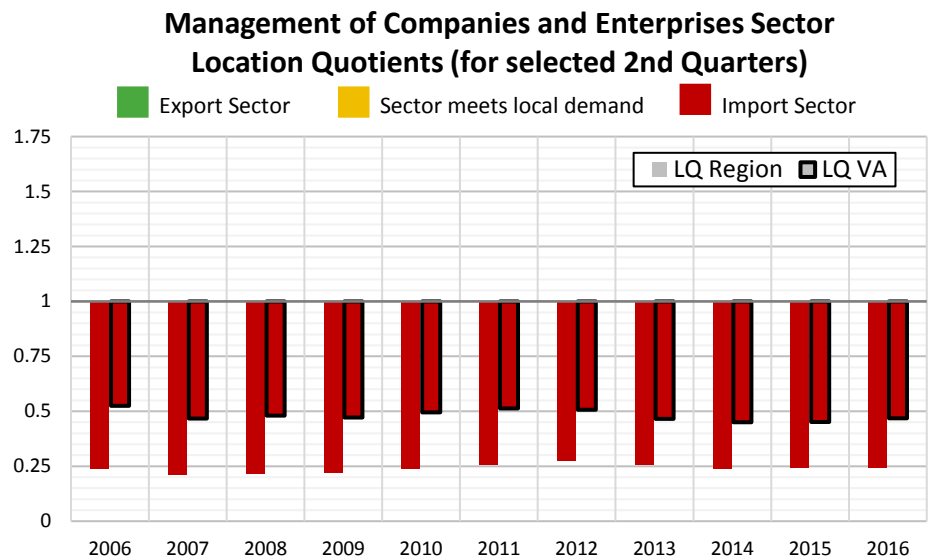
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
5511	Management of Companies and Enterprises	66	1,257	\$2,213

At the Industry Group (4digit) classification, only one industry is available for this sector. It was the Management of Companies and Enterprises (5511). This was a non-basic or import industry when compared to both the region and the state. This industry group is considerably weaker in the Richmond Region than in Virginia overall since most of these industries are located outside of Chesterfield.

2016 Location Quotient of Management Sector Industries



Location quotient analysis of the Management of Companies and Enterprises sector finds that this sector has always been a weak area when compared to the region and the state. This sector does not appear to be a significant economic driver in Chesterfield, and many of the services this sector provides are found outside of the county.



Shift Share Analysis

Employment in the Management sector in Chesterfield County grew slower than the overall average of the state economy. The sector lost 64 jobs between 2006 and 2016. If this sector matched the overall growth rate, it would have added 49 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Management of Companies & Enterprises	1,321	3.72%	49	-64
Countywide			3,717	13,643

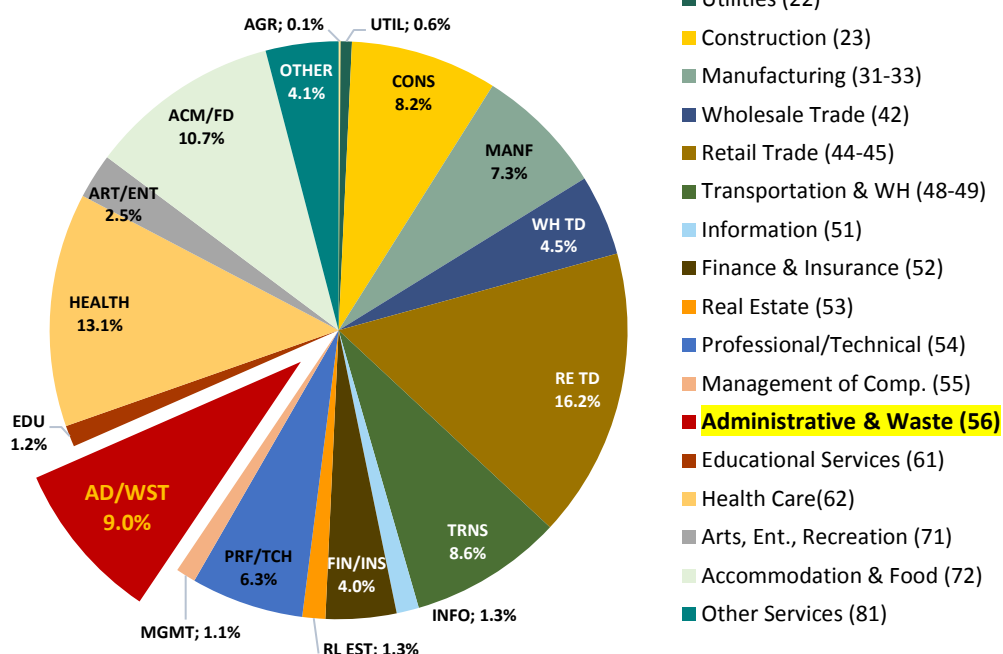
Between 2006 and 2016, the Management sector lost competitiveness in the County. Local conditions attributed to the non-realization of 26 jobs in this sector. However, the Industrial Mix component for this sector indicates that it contributed to the loss of 87 jobs. Chesterfield, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Management of Companies & Enterprises	1,321	-4.84%	-2.88%	-26
Countywide				11,445

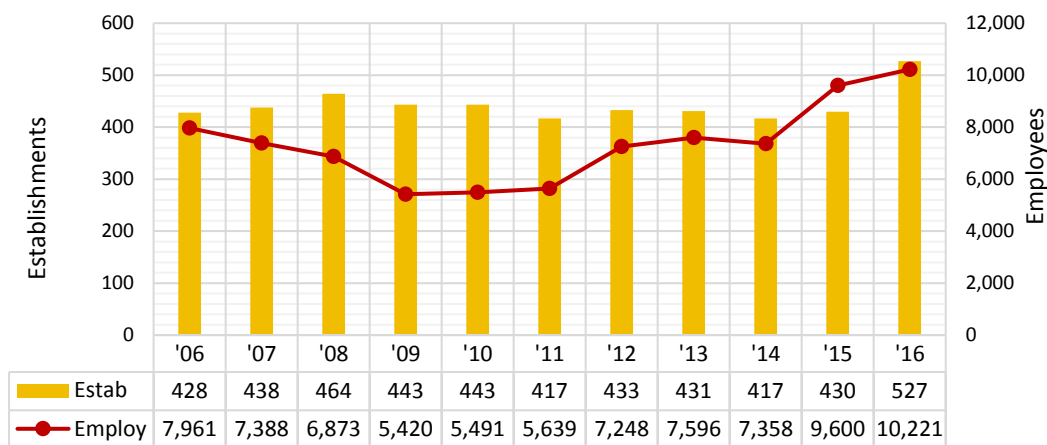
ADMINISTRATIVE & SUPPORT and WASTE MANAGEMENT & REMEDIATION SERVICES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Administrative & Support and Waste Management & Remediation Services** sector comprises establishments performing routine support activities for day-to-day operations of other businesses. These essential services are often undertaken in-house by establishments in many sectors of the sectors of the economy.

Administrative & Support and Waste Management & Remediation Services Sector Trend (Private, selected 2nd Quarters)



AD/WST Sector Numbers:

527 establishments

- 6.1% of County's Total
- 23.1% growth from 2006 establishment count
- 22.6% growth from previous year's establishment count

10,221 employed

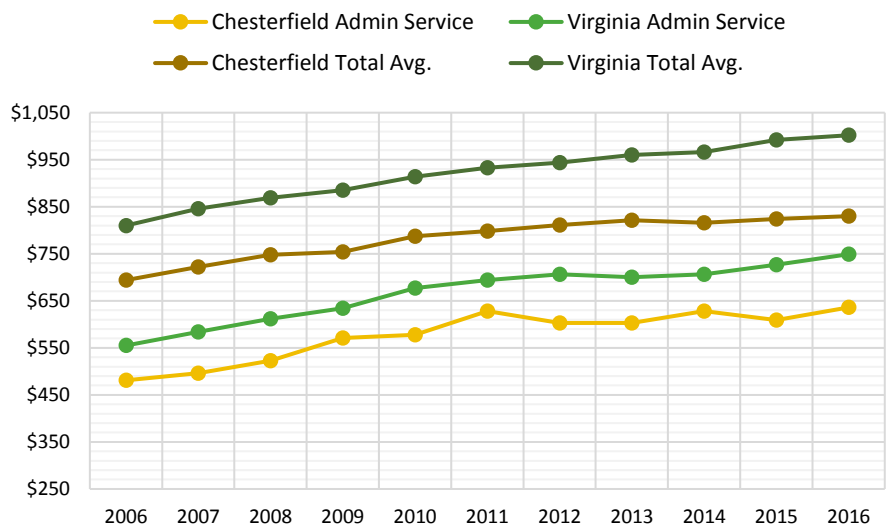
- 9% of County's Total
- 28.4% growth from 2006 employment count
- 3.6% average annual growth (2006-2016)

\$636

Average Weekly Wage

The average weekly wage for a worker in the Administrative Services sector in Chesterfield County was \$636 in second quarter of 2016. This is an increase of 32.2% over 2006, or an average annual increase of 2.9%. The Virginia wage for this sector was \$749 in the second quarter of 2016, a 35% increase over 2006 or an average annual growth of 3.1%. Chesterfield's total average weekly wage was \$830, an increase of 19.6% over 2006. Virginia's total average weekly wage was \$1,002, an increase of 23.7% over 2006.

Administrative & Support and Waste Management & Remediation Services Average Weekly Wage (selected 2nd Quarters)



Job Distribution

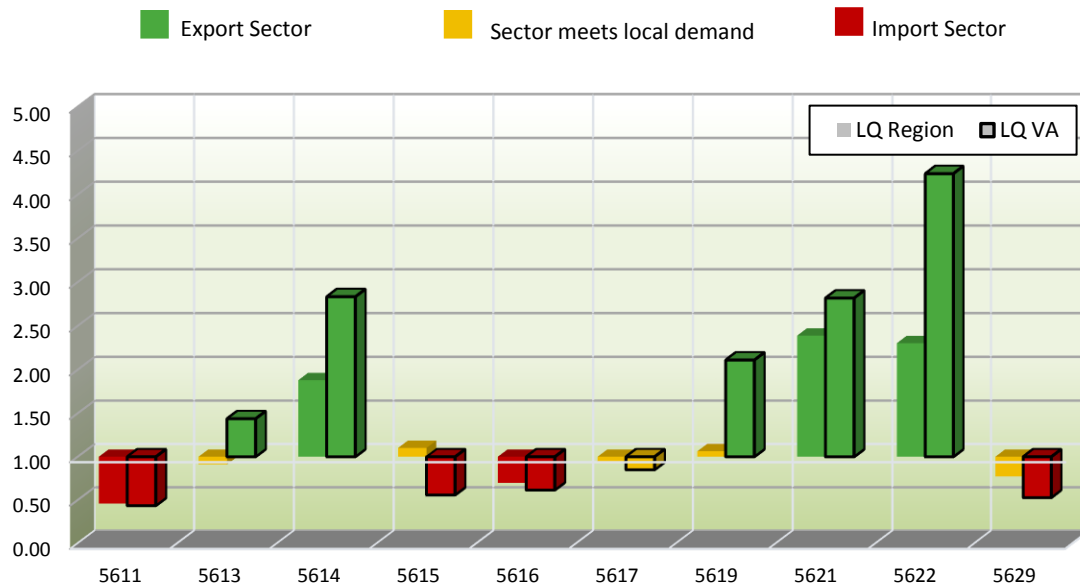
Nearly 34% of the Administrative & Support and Waste Management & Remediation Services sector workers are employed in the Employment Services Industry (5613) in the second quarter of 2016. This industry also has 97 establishments (18.4% of sector's total establishments), a far second from the Services to Buildings and Dwellings Industry (5617) which had 263 establishments or approximately half of the establishments in this sector. The highest paying industry in this sector was the Office Administrative Services (5611) at \$2,251 average per week. This industry is one of the smallest in this sector, with 24 establishments (4.6% of sector's total) and 168 employees (1.6% of sector's total).

Top Administrative & Support and Waste Management & Remediation Services Sector Employment by Numbers (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
5613	Employment Services	97	3,483	\$538
5614	Business Support Services	54	2,448	\$656
5617	Services to Buildings and Dwellings	263	2,177	\$476
5616	Investigation and Security Services	26	578	\$609
5619	Other Support Services	21	455	\$893

Location Quotient Analysis

2016 Location Quotient of Administrative & Support and Waste Management & Remediation Services Sector Industries

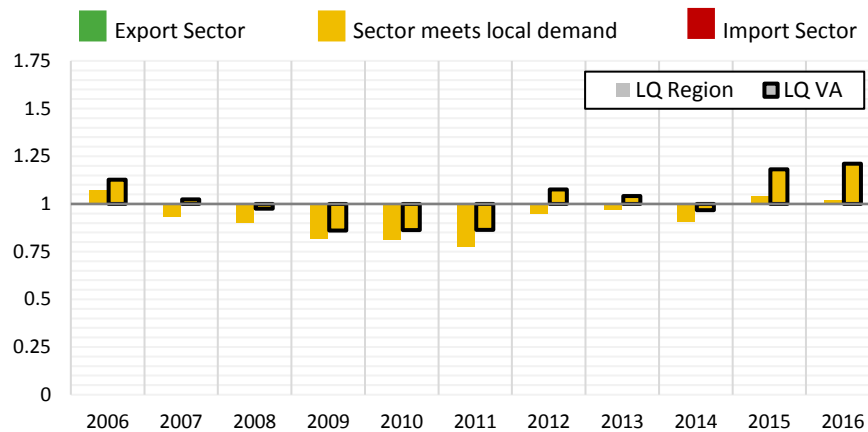


5611	Office Administrative Services	5617	Services to Buildings and Dwellings
5613	Employment Services	5619	Other Support Services
5614	Business Support Services	5621	Waste Collection
5615	Travel Arrangement and Reservation Services	5622	Waste Treatment and Disposal
5616	Investigation and Security Services	5629	Remediation and Other Waste Management Services

Of the ten reportable industries in the Administrative and Support and Waste Management and Remediation Services sector, three were considered basic or export industries compared to both the region and the state: Business Support Services (5614), Waste Collection (5621) and Waste Treatment and Disposal (5622). There were two industries that were considered basic and were stronger compared to the state employment levels. These industries were the Employment Services (5613) and Other Support Services (5619). On the other hand, there were two industries in this sector that were considered non-basic or importing: Office Administrative Services (5611) and Investigation and Security Services (5616).

This sector is just sufficient to meet the needs of the local population. From 2006 to 2011, this sector has been declining. But in the past two years, the sector showed increasing and strengthening LQ scores when compared to the state employment level.

Administrative Services Sector Location Quotients (for selected 2nd Quarters)



Shift Share Analysis

Employment in the Administrative and Support and Waste Management and Remediation Services sector in Chesterfield County grew faster than the overall average of the state economy. If this sector matched the overall growth rate, it would have only added 296 jobs, instead it added 2,260 jobs between 2006 and 2016. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Administrative & Waste Services	7,961	3.72%	296	2,260
Countywide			3,717	13,643

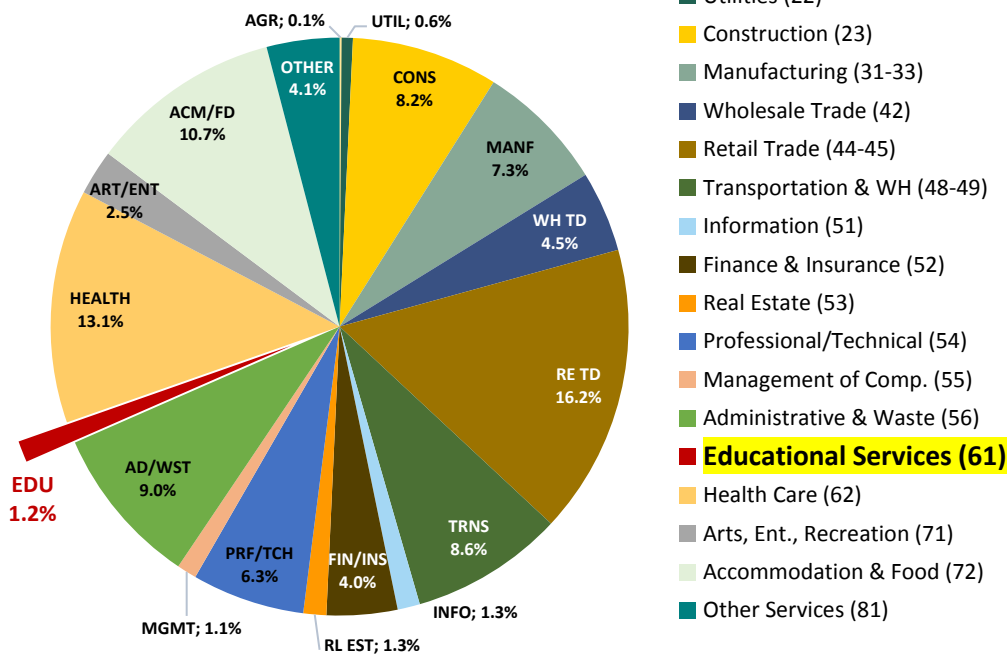
Between 2006 and 2016, the Administrative and Support and Waste Management and Remediation Services sector is a competitive sector in the County. Local conditions attributed to the realization of 1,560 jobs. This sector's County employment rate grew almost three times faster than state's employment rate in the same sector. Chesterfield, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Administrative & Waste Services	7,961	28.39%	8.79%	1,560
Countywide				11,445

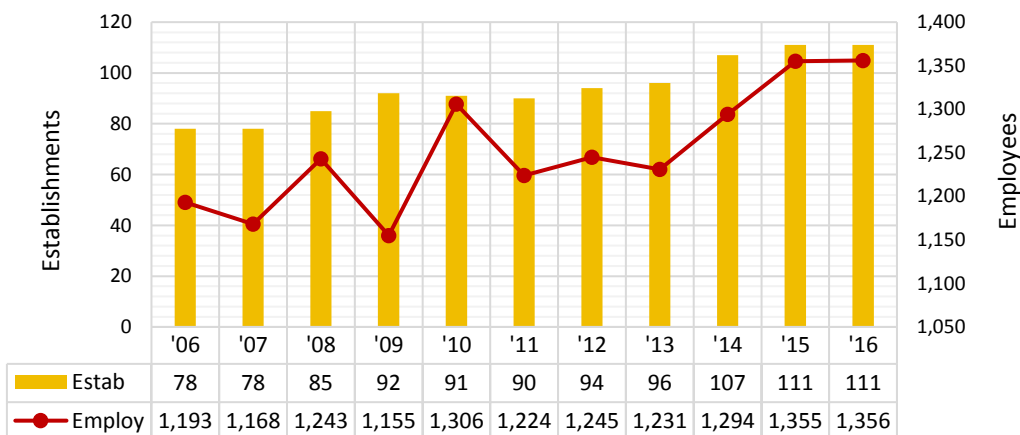
EDUCATIONAL SERVICES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Educational Services** sector consists of establishments that provide instruction and training in a wide variety of subjects, by specialized establishments, such as schools, colleges, universities, and training centers. This report includes only privately owned and operated businesses for profit or not for profit, not publicly owned and operated facilities.

Educational Services Sector Trend (Private, selected 2nd Quarters)



EDU Sector Numbers:

111 establishments

- 1.3% of County's Total
- 42.3% growth from 2006 establishment count

1,356 employed

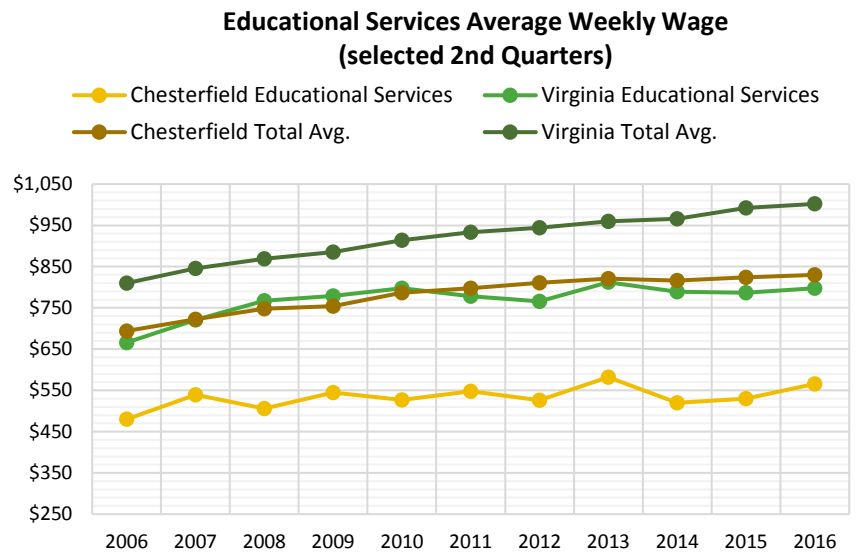
- 1.2% of County's Total
- 13.6% growth from 2006 employment count

\$566

Average Weekly Wage

- 6.8% increase from previous year's wage

The average weekly wage of a worker in the Education Sector in Chesterfield County was \$566 in the second quarter of 2016. This was approximately 18% increase over 2006 or an average annual increase of 1.9%. The Virginia wage for this sector in the second quarter of 2006 was \$798, a 19.8% over 2006 or an average annual increase of 1.9%. Chesterfield's total average weekly wage was \$830, an increase of 19.6% over 2006 and Virginia's total average weekly wage was \$1,002, an increase of 23.7% over 2006.



Job Distribution

Approximately 35.5% of the Educational Services sector workers were employed in the Other Schools and Instruction Industry (5613) in the second quarter of 2016. This industry also has the most establishments in this sector, with 60 establishments or 54.1% sector's total establishments. However, this industry has the lowest paying average weekly wage in this sector at \$295. The industry with the highest paying average weekly wage in this sector is the Business Schools and Computer and Management industry (6114) at \$2,083.

Top Education Services Sector Industries by Employment (Private, 2nd Quarter 2016)

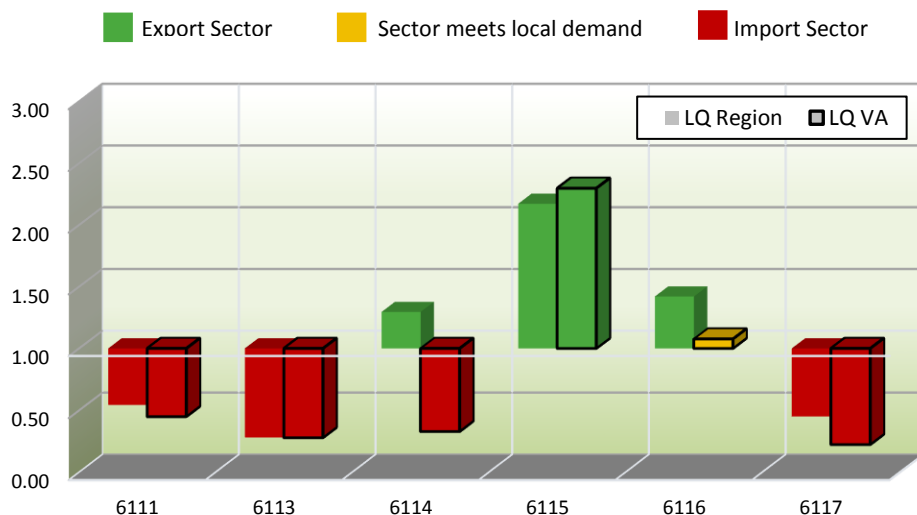
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
6116	Other Schools and Instruction	60	481	\$297
6111	Elementary and Secondary Schools	11	308	\$629
6113	Colleges, Universities, and Professional Schools	6	216	\$707
6115	Technical and Trade Schools	7	185	\$587

Location Quotient Analysis

Of the six reportable Educational Services sector industry groups in Chesterfield, only the Technical and Trade Schools industry (6115) was considered basic or exporting, when compared with both the state and the region. Two industries were considered basic when compared to the regional employment level but weaker when compared to the state employment level, namely the Business Schools and Computer and Management industry (6114) and the Other Schools and Instruction industry (6116). The rest were

considered non-basic or importing industries. Goods and services in non-basic industries are partially provided by sources and businesses surrounding the locality. These industries' goods and services are "imported" to meet the demand of the local population.

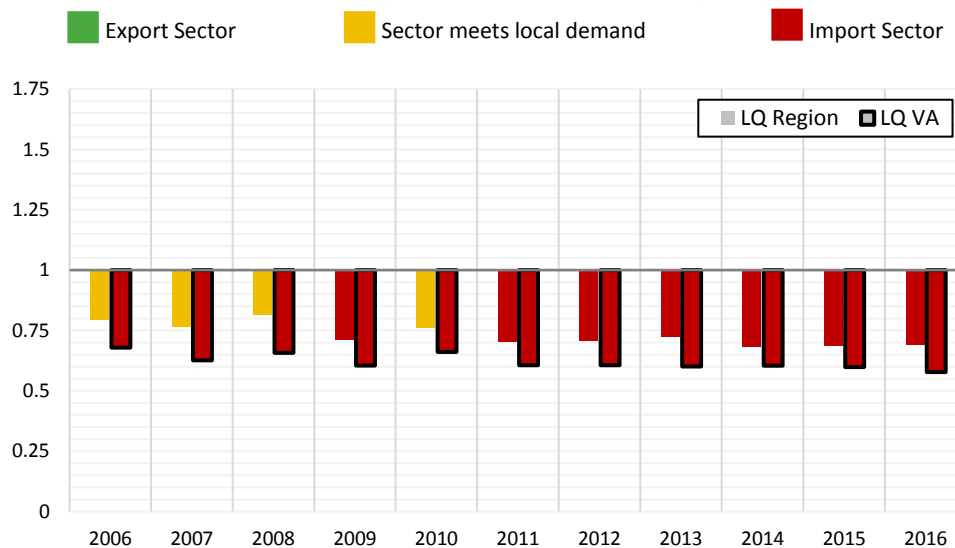
2016 Location Quotient of Educational Services Sector Industries



6111	Elementary and Secondary Schools
6113	Colleges, Universities, and Professional Schools
6114	Business Schools and Computer and Management Training
6115	Technical and Trade Schools
6116	Other Schools and Instruction
6117	Educational Support Services

Location quotient trend for the Educational Services sector finds that this industry has been weakening. Until 2010, this sector when compared to the region just meets the needs of the local population. It has always been weaker when compared to state employment levels. But since 2011, this sector is considered insufficient to meet the needs of the local population.

Educational Services Sector Location Quotients (for selected 2nd Quarters)



Shift Share Analysis

Employment in the Educational Service sector in Chesterfield County outpaced the growth of the overall average of the state economy. This sector added 163 jobs between 2006 and 2016, as shown in the table below. If this sector matched the overall growth rate, it would have only added 44 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Educational Services	1,193	3.72%	44	163
Countywide			3,717	13,643

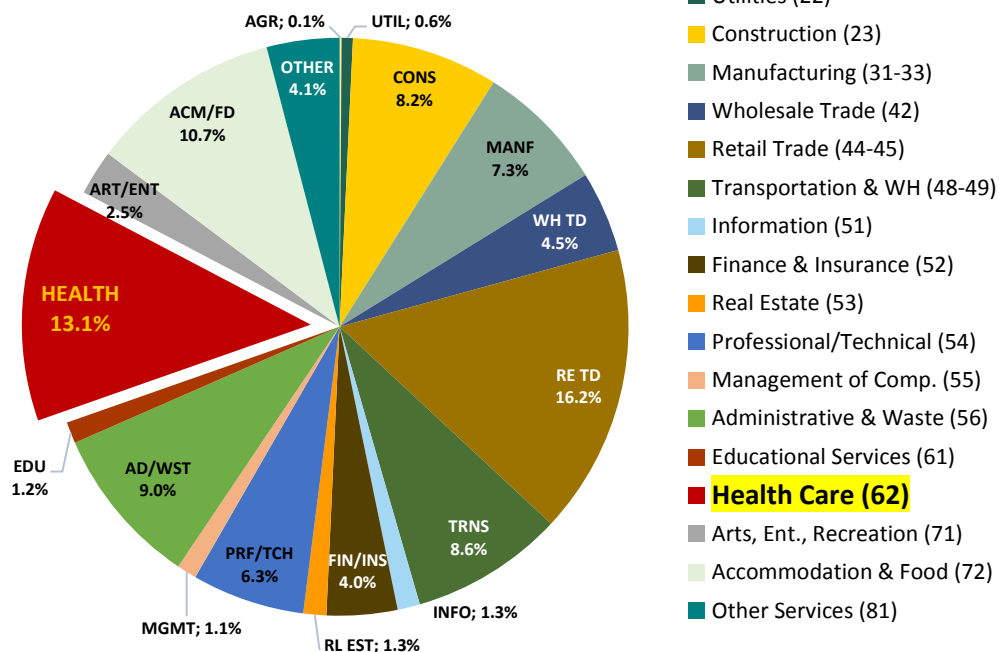
The Educational Services sector lost competitiveness in Chesterfield County, as indicated by the non-realization of 95 jobs in this sector. This sector's employment growth in the County is slower at 13.66% compared to the State's rate at 21.6% between 2006 and 2016. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Educational Services	1,193	13.66%	21.61%	-95
Countywide				11,445

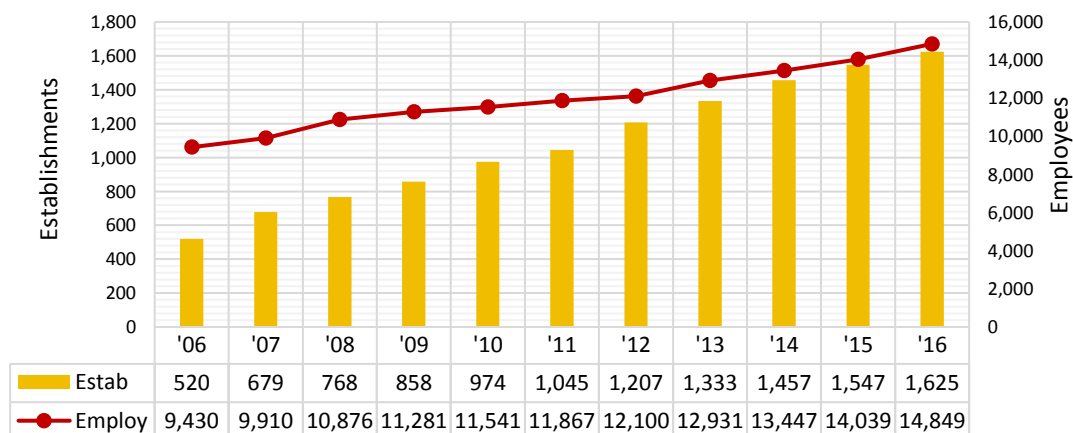
HEALTH CARE & SOCIAL ASSISTANCE SECTOR

Chesterfield County Employment Composition (Private, 2nd Quarter 2016)



The **Health Care and Social Assistance sector** includes establishments providing health care and social assistance for individuals. The services provided by businesses in this sector are delivered by trained professionals, with many of the industries in this sector defined by the educational degree held by the practitioners of the industry.

Health Care and Social Assistance Sector Trend (Private, selected 2nd Quarters)



HEALTH Sector Numbers:

1,625 establishments

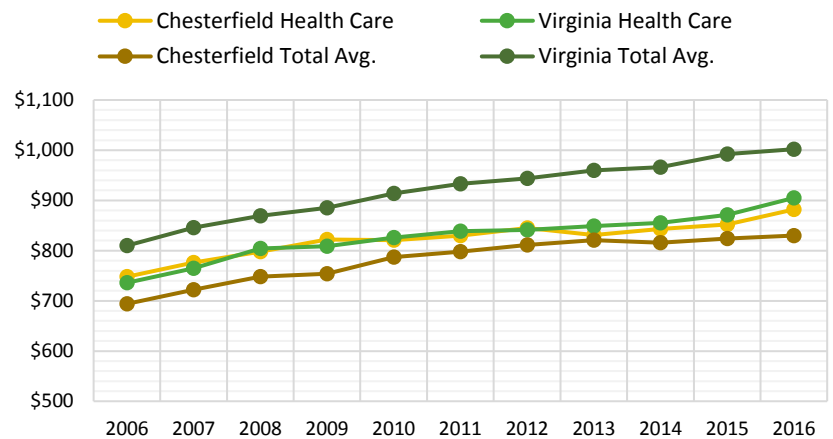
- 18.9% of County's Total (sector with most establishments)
 - 212.5% growth from 2006 establishment count
 - 5% increase from previous year
- 14,849** employed
- 13.1% of County's Total
 - 57.5% growth from 2006 employment count
 - 5.8% increase from previous year

\$882

Average Weekly Wage

In the second quarter of 2016, the average weekly wage of a worker in the Health Care and Social Assistance sector in Chesterfield County was \$882. This was an increase of 17.9% percent over 2006 or an average annual increase of 1.7%. This rate is lower compared to the 10-year change in wage rate for the Virginia Health Care Sector (average weekly wage of \$905; 23% increase over 2006), Chesterfield total average weekly wage (\$830; 19.6% increase over 2006) and Virginia total average weekly wage (\$1,002; 23.7% increase over 2006).

**Health Care and Social Assistance Average Weekly Wage
(selected 2nd Quarters)**



Job Distribution

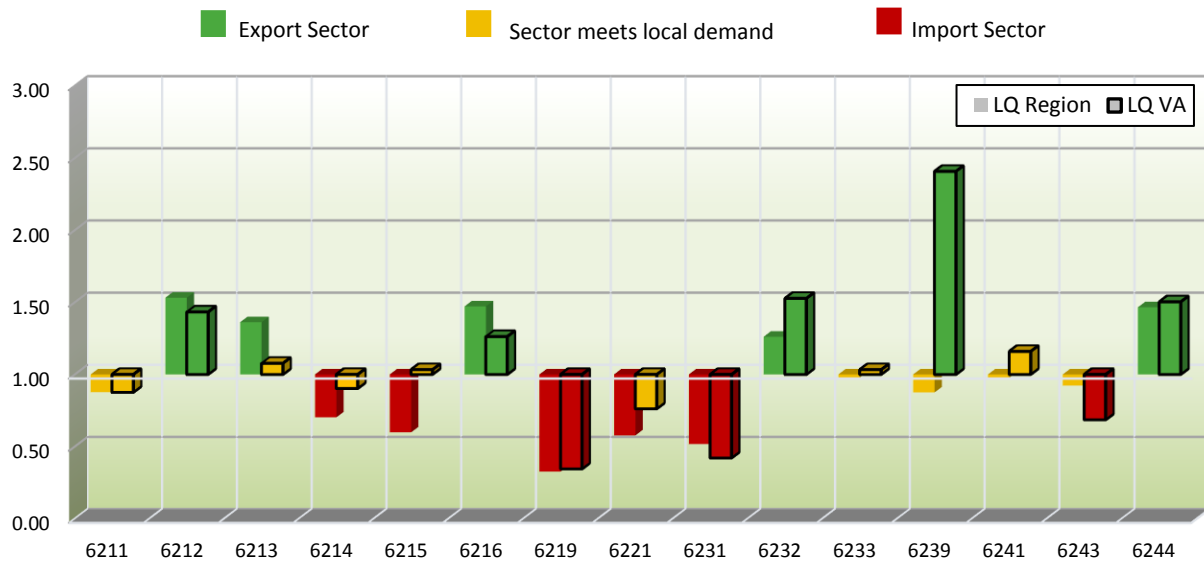
Nearly 18% Health Care and Social Assistance sector workers were employed in the General Medical and Surgical Hospitals Industry (6221) in the second quarter of 2016. This industry also had 2,623 employees in its eight establishments. The industry with the most establishments was the Individual and Family Services (6241) which has 905 establishments or 55.7% of the sector's total establishments count. Distant second is the Offices of Physicians industry (6241) with 172 establishments (10.6% of sector). This is also the highest paying industry in the sector, providing an average weekly wage of \$1,817.

Top Health Care and Social Assistance Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
6221	General Medical and Surgical Hospitals	8	2,623	\$1,161
6211	Offices of Physicians	172	2,128	\$1,817
6241	Individual and Family Services	905	1,931	\$414
6216	Home Health Care Services	31	1,281	\$598
6212	Offices of Dentists	133	1,251	\$1,067
6244	Child Day Care Services	66	1,204	\$398
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	21	1,131	\$462

Location Quotient Analysis

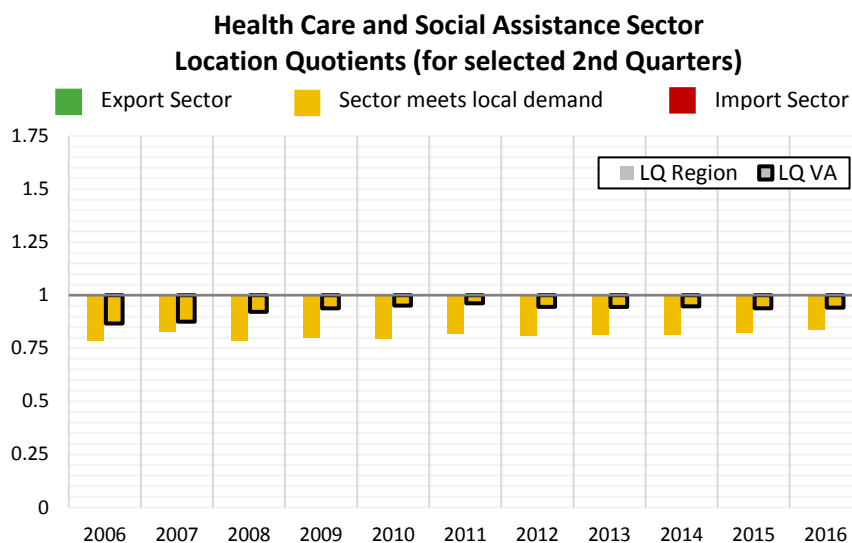
2016 Location Quotient of Health Care and Social Assistance Sector Industries



6211	Offices of Physicians
6212	Offices of Dentists
6213	Offices of Other Health Practitioners
6214	Outpatient Care Centers
6215	Medical and Diagnostic Laboratories
6216	Home Health Care Services
6219	Other Ambulatory Health Care Services
6221	General Medical and Surgical Hospitals
6231	Nursing Care Facilities (Skilled Nursing Facilities)
6232	Residential Intellectual and Developmental Disability, Mental Health and Substance Abuse Facility
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly
6239	Other Residential Care Facilities
6241	Individual and Family Services
6243	Vocational Rehabilitation Services
6244	Child Day Care Services

Of the 15 reportable Health Care and Social Assistance sector industries, four were considered basic or exporting compared to both the region and the state: Offices of Dentists (6216), Home Health Care Services (6216), Residential Intellectual and Developmental Disability, Mental Health and Substance Abuse Facility (6232) and Child Day Care Services (6244). On the other hand, when compared to both the region and the state, there were two non-basic or importing industries in this sector: Other Ambulatory Health Care Services (6219) and Nursing Care Facilities - Skilled Nursing Facilities (6231). The Other Residential Care Facilities Industry (6239) was a strong industry when compared to the state employment level. It received a Location Quotient score of 2.4, making it a basic or exporting industry in the context of the state.

The Location Quotient Analysis for the Health Care and Social Assistance Sector finds that this sector's industries are strong enough and sufficient to meet the needs of the local population. It is neither a basic (exporting) sector nor a non-basic (importing sector).



Shift Share Analysis

Employment in the Health Care and Social Assistance sector in Chesterfield County outpaced the growth of the overall average of the state economy. This sector added 5,419 jobs between 2006 and 2016, compared to only 351 jobs that would have been added if this sector matched the overall growth rate. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Health Care & Social Assistance	9,430	3.72%	351	5,419
Countywide			3,717	13,643

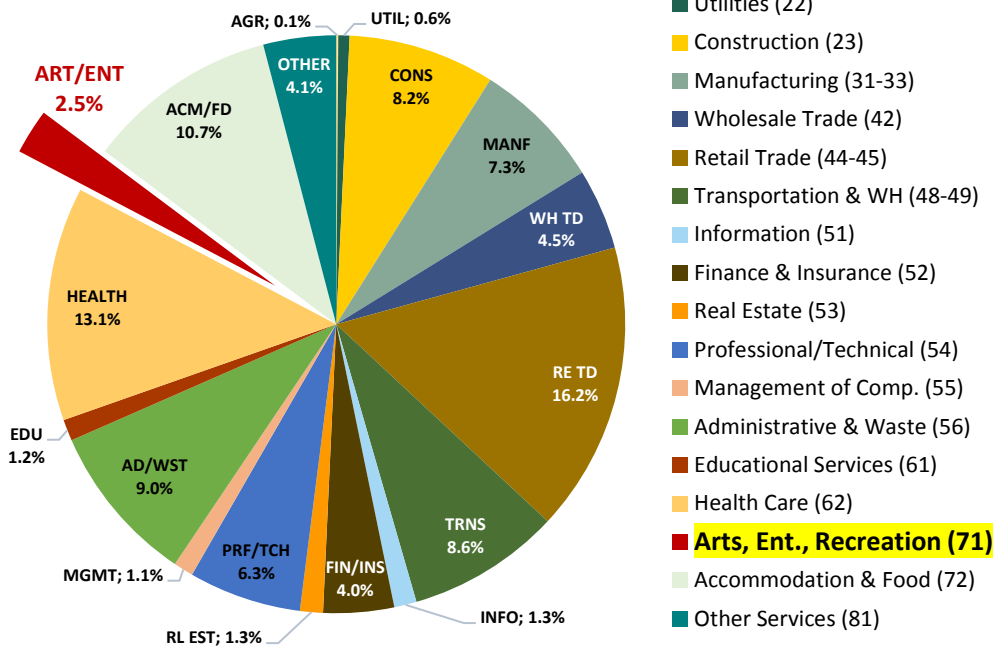
The Health care sector saw the realization of 2,403 jobs in this sector due to its Local Competitive Share. This sector's employment growth in the County is 57.5% compared to the State's rate at just 32% between 2006 and 2016. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Health Care & Social Assistance	9,430	57.47%	31.98%	2,403
Countywide				11,445

ARTS, ENTERTAINMENT & RECREATION SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Arts, Entertainment and Recreation sector** includes a wide range of establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons. This sector includes businesses involved in public events or exhibits; historical, cultural, and educational events; and operators of facilities involved in the pursuit of hobby or leisure-time interests.

ART/ENT Sector Numbers:

111 establishments

- 1.3% of County's Total
- 37% growth from 2006 establishment count

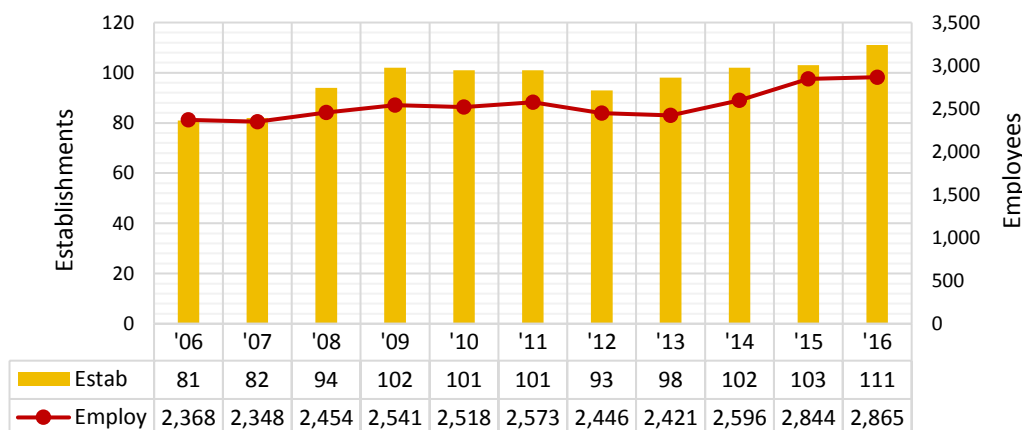
2,865 employed

- 2.5% of County's Total
- 21% growth from 2006 employment count

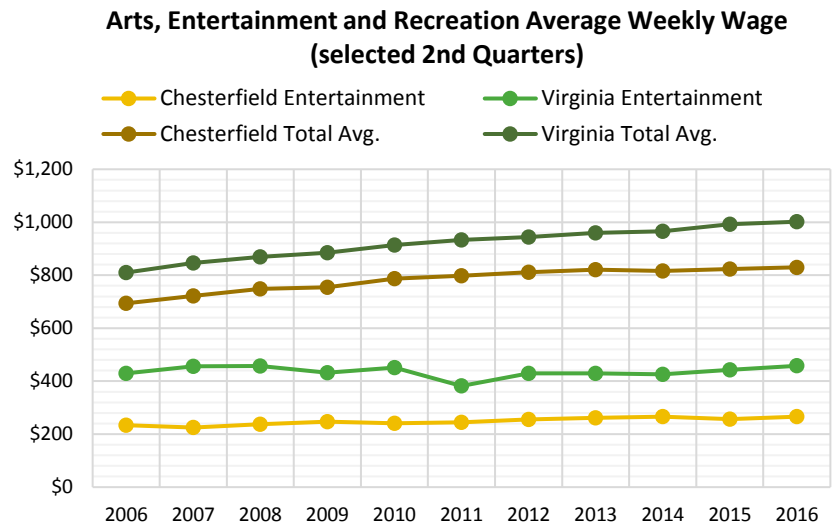
\$266

Average Weekly Wage

**Arts, Entertainment and Recreation Sector Trend
(Private, selected 2nd Quarters)**



The average weekly wage of a worker in the Arts, Entertainment, and Recreation sector in Chesterfield County was \$266 in the second quarter of 2016, a 13.7% increase or an average annual increase of 1.3%. The Virginia wage for this sector was \$458, an increase of 6.8% over 2006 or an average annual increase of 0.9%. Chesterfield's total average weekly wage was \$830 (wage increase of 19.6% over 2006) and Virginia's average weekly wage was \$1,002 (wage increase of 23.7% over 2006).



Job Distribution

The Other Amusement and Recreation Industries (7139) lead this sector in size. In the second quarter of 2016, over 92% of the Arts, Entertainment and Recreation sector workers and nearly 75% of this sector's establishments in Chesterfield County belong in this industry. Industry 7139 offers an average weekly wage of \$259. Meanwhile, the Independent Artists, Writers, and Performers industry (7115) reported the highest average weekly wage in this sector at \$817. This industry group contributed approximately 0.4% of total sector employment and 7.2% of total sector establishments.

Top Arts, Entertainment & Recreation Sector Industries by Employment (Private, 2nd Quarter 2016)

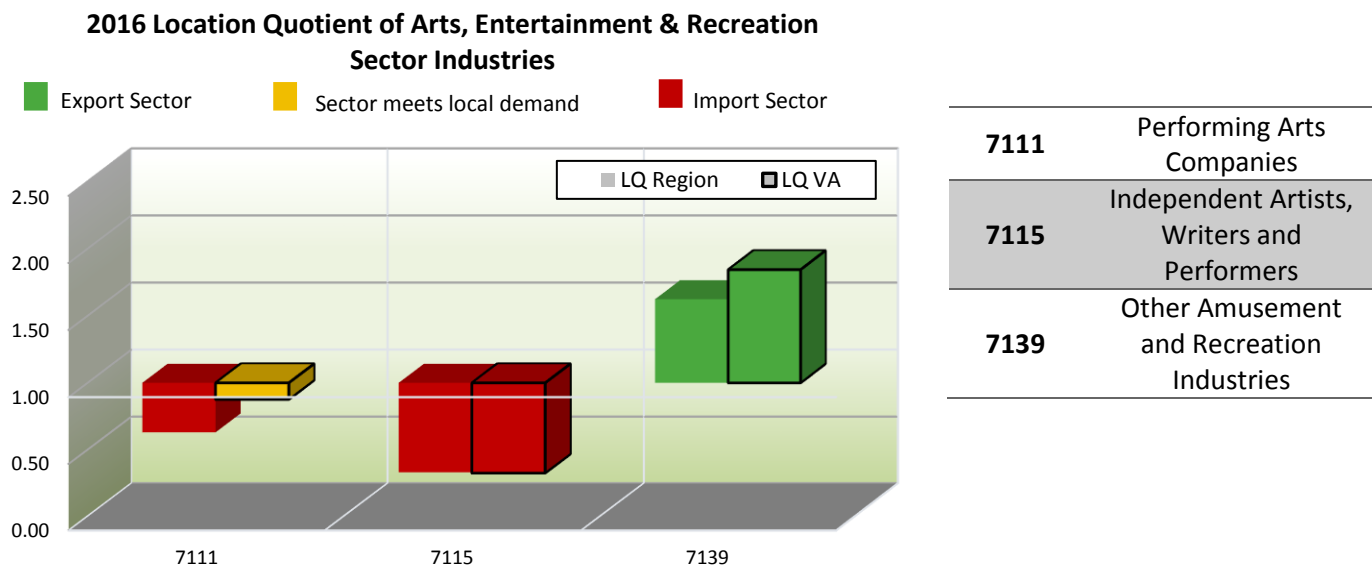
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
7139	Other Amusement and Recreation Industries	83	2,640	\$259
7111	Performing Arts Companies	7	64	\$228
7131	Amusement Parks and Arcades	3	48	\$147
7115	Independent Artists, Writers, and Performers	8	10	\$817

Location Quotient Analysis

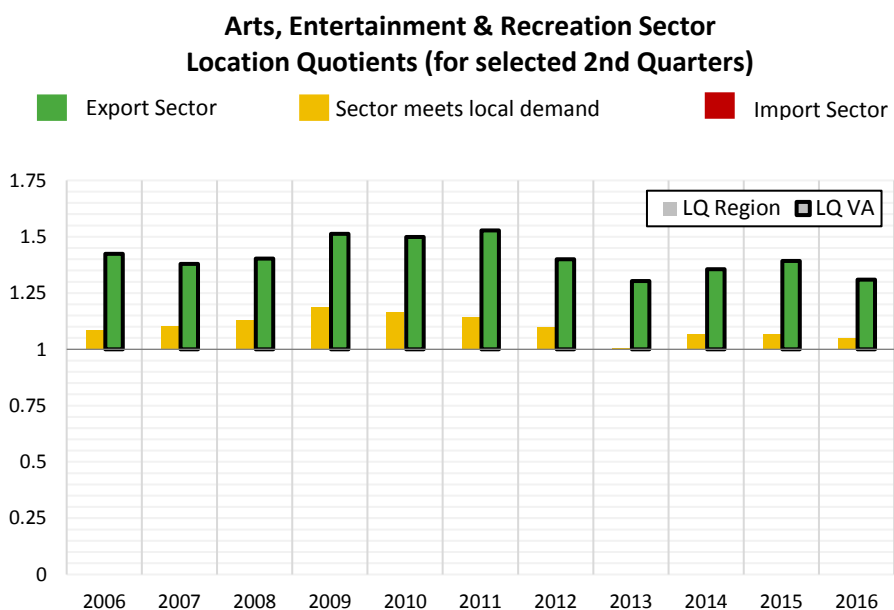
There were three reportable industry groups in the Arts, Entertainment and Recreation Sector. The regional data for Amusement Parks and Arcades industry (7131) was confidential, thus it was not included in the Location Quotient analysis.

Of these three, the Other Amusement and Recreation Industries (7139) was the only basic or export industry when compared to both the region and the state. The Performing Arts Companies (7111) was

weaker when compared to the region but the Independent Artists, Writers and Performers (7115) was considered a non-basic or import industry in comparison to both the region and the state.



The Arts, Entertainment sector Location Quotient trend reveals that this sector has maintained its strength when compared to the state. Although it scored lower than previous years, this sector remains a basic sector in the context of the state. 2002. It is weaker when compared to the Richmond region. However, even then, this sector is strong enough to meet the demand of the local population



Shift Share Analysis

Employment in the Arts, Entertainment and Recreation sector in Chesterfield County grew faster than the overall average of the state economy. This sector added 497 jobs between 2006 and 2016. If this sector matched the overall growth rate, it would have only added 88 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Arts, Entertainment & Recreation	2,368	3.72%	88	497
Countywide			3,717	13,643

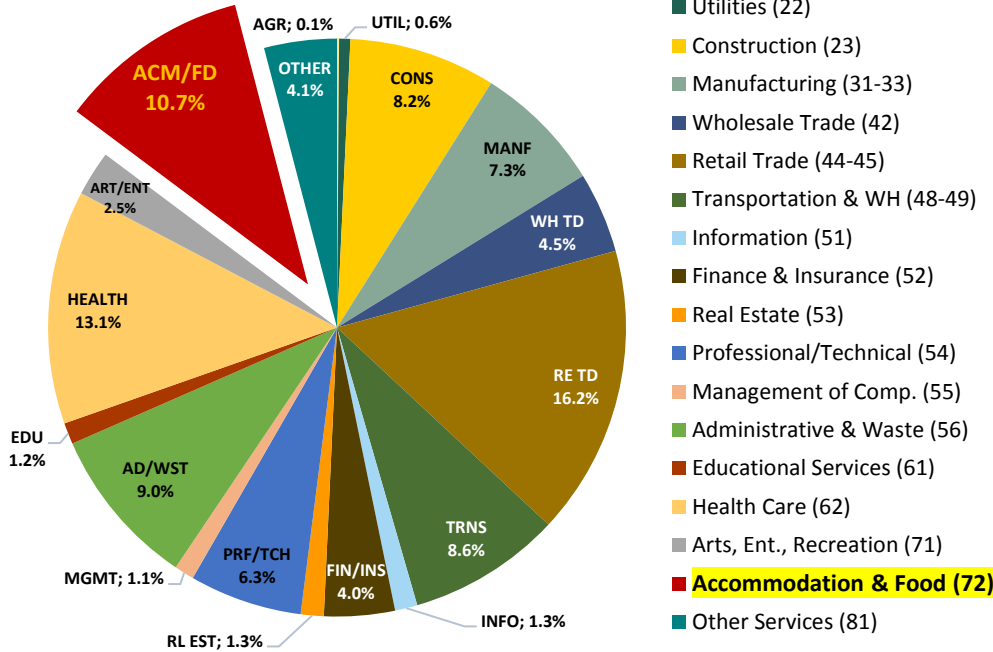
Local conditions attributed to the gain of 28 jobs in the Arts, Entertainment and Recreation sector. This sector's employment growth in the County (approximately 21%) is almost the same as the State's employment rate for this sector (19.8%) between 2006 and 2016. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Arts, Entertainment & Recreation	2,368	20.99%	19.79%	28
Countywide				11,445

ACCOMMODATION & FOOD SERVICES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Accommodation and Food Services sector** comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption. The sector includes both accommodation and food services establishments because the two activities are often combined at the same establishment.

ACM/FD Sector Numbers:

565 establishments

- 6.6% of County's Total
- 27.5% growth from 2006 establishment count
- 3.1% increase from previous year

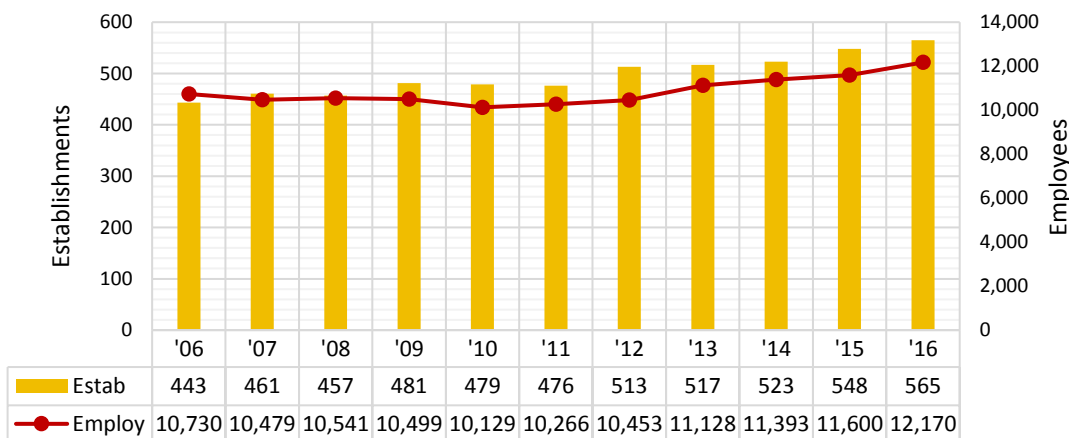
12,170 employed

- 10.7% of County's Total
- 13.4% growth from 2006 employment count
- 4.9% increase from previous year

\$302

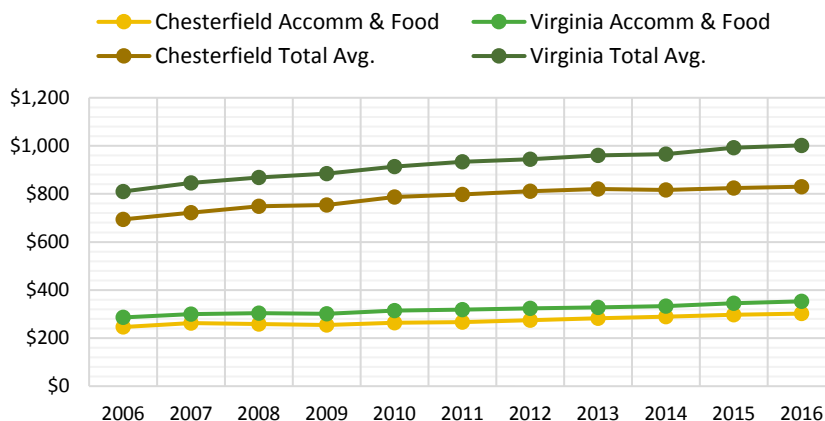
Average Weekly Wage

**Accommodation and Food Services Sector Trend
(Private, selected 2nd Quarters)**



Average weekly wage trends for a worker in the Accommodation and Food Services sector in Chesterfield County was \$302 in the second quarter of 2016. This was a 22.8% increase over 2006 or an average annual increase of 1.7%. The average Virginia wage for this sector was \$353, an increase of 23.4% over 2006 or an average annual increase of 2.3%. Chesterfield's total average weekly wage was \$830, an increase of 19.6% over 2006. Virginia's average weekly wage was \$1,002, an increase of 23.7% over 2006

**Accommodation and Food Services Average Weekly Wage
(selected 2nd Quarters)**



Job Distribution

Top Accommodation and Food Services Sector Industries by Employment (Private, 2nd Quarter 2016)

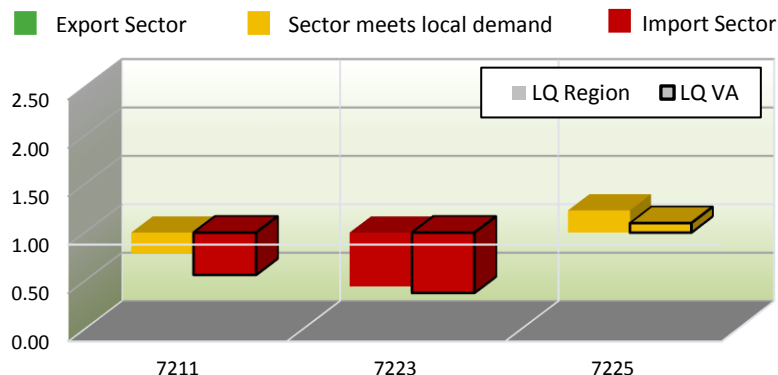
NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
7225	Restaurants and Other Eating Places	481	10,993	\$292
7211	Traveler Accommodation	54	929	\$376
7223	Special Food Services	29	245	\$468

Approximately 90% of employment and approximately 85% of establishments in the Accommodation and Food Services sector in Chesterfield County is concentrated in the Restaurants and Other Eating Places industry (7225) as reported in the second quarter of 2016. However, the highest-paying industry group in this sector was Special Food Services, with an average weekly wage of \$468. This industry group had 245 employees, accounting for two percent of total sector employment, and 29 establishments, accounting for five percent of total sector establishment count.

Location Quotient Analysis

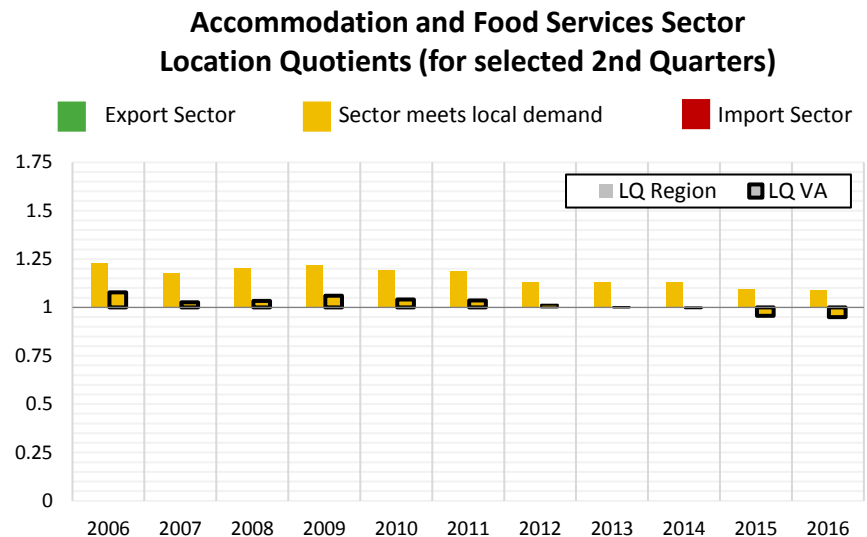
Of the three reportable Accommodation and Food Services sector industry groups, none were considered basic or exporting. The Restaurants and Other Eating Places industry (7225) was considered to meet the demands of the local population when compared to both the region and the state. The Special Food Services industry (7223) was considered non-basic or importing in

**2016 Location Quotient of Accommodation & Food Services
Sector Industries**



both the regional and state context. In general, the higher the bar reflects a stronger industry group. Whereas, the lower the bar signifies a weaker industry group in the local economy.

Location quotient analysis of the Accommodation and Food Services sector finds that this industry has been relatively stable and this sector provides sufficient services to meet the demands of the local population, but is not considered a strong driver of the local economy.



Shift Share Analysis

Employment in the Accommodation and Food Services sector in Chesterfield County grew faster than the overall average of the state economy. This sector added 1,440 jobs between 2006 and 2016. If this sector matched the overall growth rate, it would have only added 399 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Accommodation & Food Services	10,730	3.72%	399	1,440
Countywide			3,717	13,643

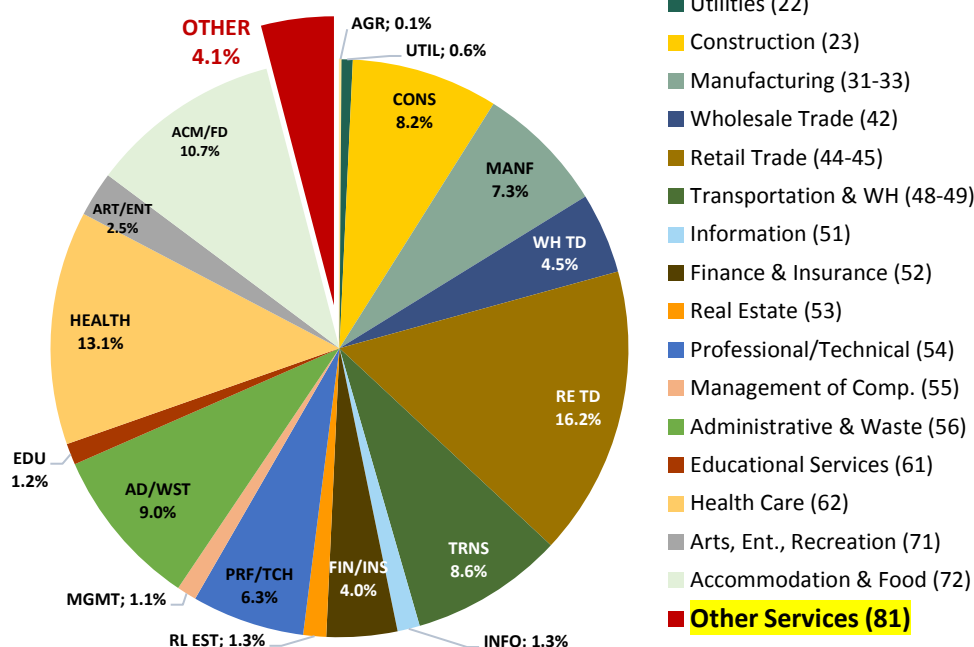
The Accommodation and Food Services sector lost competitiveness in Chesterfield County. Local conditions attributed to the non-realization of 403 jobs in this sector between 2006 and 2016. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Accommodation & Food Services	10,730	13.42%	17.18%	-403
Countywide				11,445

OTHER SERVICES SECTOR

**Chesterfield County Employment Composition
(Private, 2nd Quarter 2016)**



The **Other Services sector** comprises establishments that provide services not specifically provided for in any other sector.

Establishments in this sector are primarily engaged in:

- Repair
- Advocacy
- Personal and pet care services
- Laundry services
- Private households with paid workers providing household operation services

OTHER Sector Numbers:

697 establishments

- 8.1% of County's Total
- 29.8% growth from 2006 establishment count

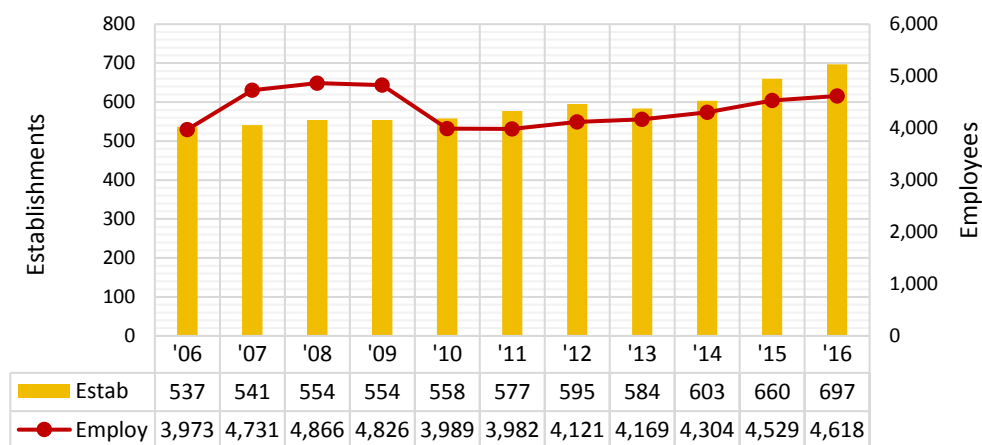
4,618 employed

- 4.1% of County's Total
- 16.2% growth from 2006 employment count

\$608

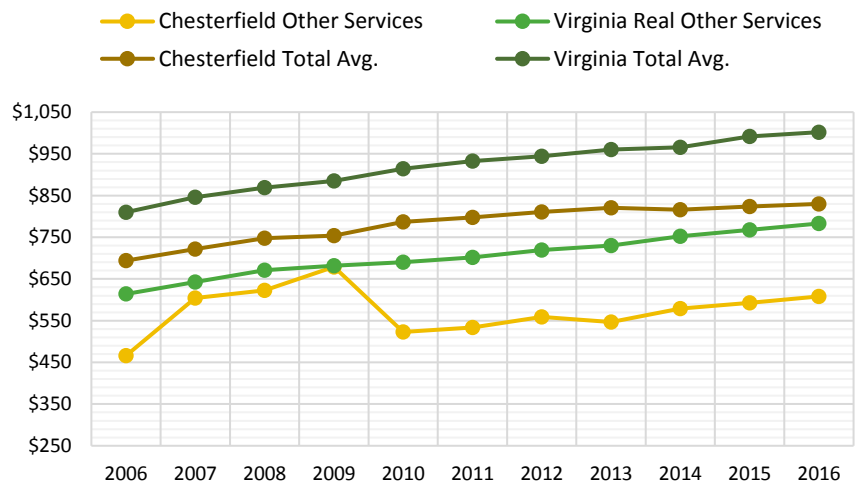
Average Weekly Wage

Other Services Sector Trend (Private, selected 2nd Quarters)



In the second quarter of 2016, the average weekly wage of a worker in the Other Services sector was \$608 in Chesterfield County. This was a 30.5% increase over 2006 or an average annual increase of 2.5%. The average weekly wage for this sector in Virginia was \$783, a 27.5% increase over 2006 or an annual average increase of nearly two percent. The total average weekly wage for the County was \$830 (19.6% increase over 2006) and for the State was \$1,002 (23.7% increase over 2006).

Other Services Average Weekly Wage (selected 2nd Quarters)



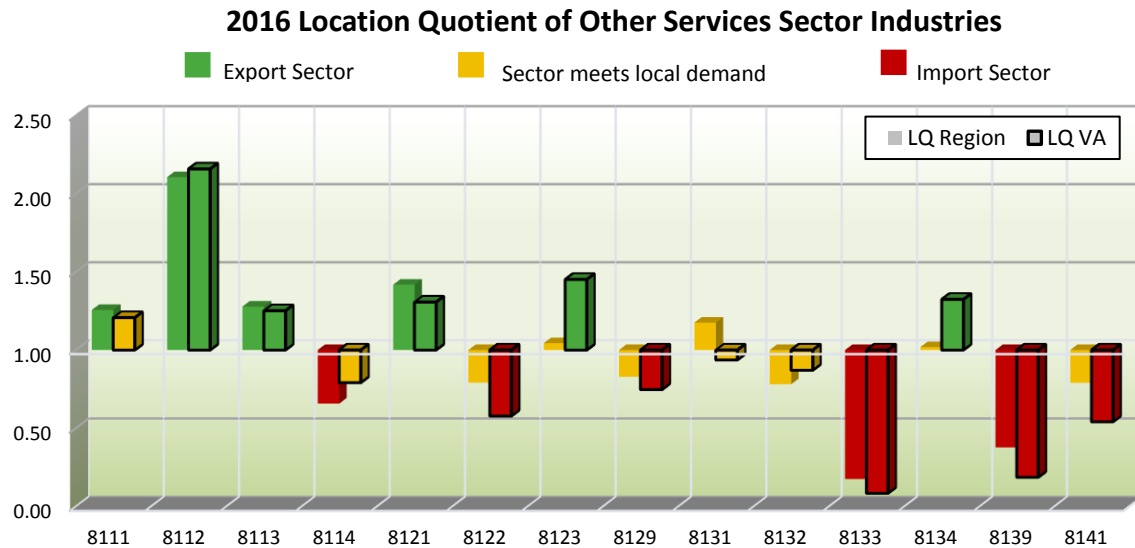
Job Distribution

Top Other Services Sector Industries by Employment (Private, 2nd Quarter 2016)

NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
8111	Automotive Repair and Maintenance	142	1,115	\$672
8121	Personal Care Services	127	1,014	\$486
8134	Civic and Social Organizations	12	600	\$159
8123	Drycleaning and Laundry Services	30	454	\$619
8129	Other Personal Services	60	249	\$602
8112	Electronic and Precision Equipment Repair and Maintenance	20	242	\$1,125

The Automotive Repair and Maintenance Industry (8111) and the Personal Care Services Industry (8121) are the largest employers in this sector, employing 46.1% of the total employment in the Other Services sector. On the other hand, the industry with the most establishments in this sector is the Private Households (8141), having 183 establishments or 26.3% of the total establishments in the Other Services sector. The Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance Industry (8113) offers the highest average weekly wage for its employees at \$1,248. This industry has 24 establishments (3.4% of total establishments in this sector) and employs 190 workers (4.1% of sector's total employment).

Location Quotient Analysis



8111	Automotive Repair and Maintenance
8112	Electronic and Precision Equipment Repair and Maintenance
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
8114	Personal and Household Goods Repair and Maintenance
8121	Personal Care Services

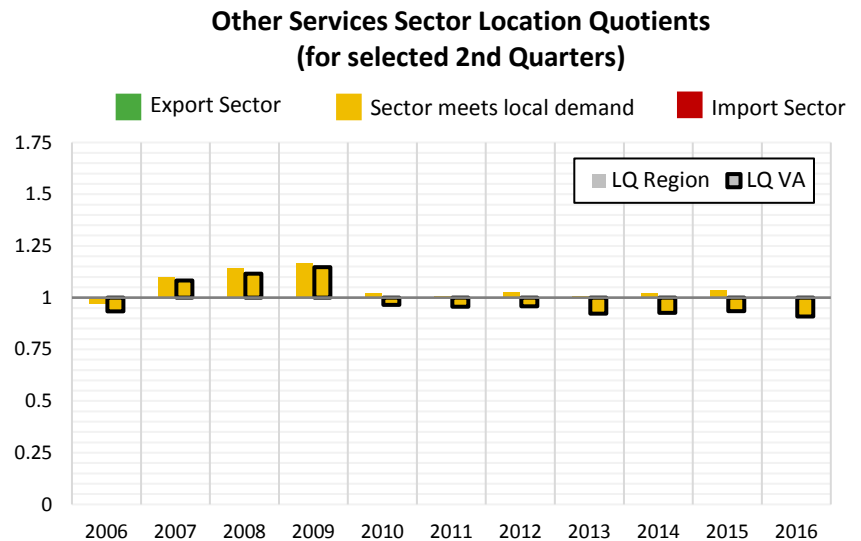
8122	Death Care Services
8123	Drycleaning and Laundry Services
8129	Other Personal Services
8131	Religious Organizations
8132	Grantmaking and Giving Services
8133	Social Advocacy Organizations
8134	Civic and Social Organizations
8139	Business, Professional, Labor, Political and Similar Organizations
8141	Private Households

Of the 14 reportable Other Services sector industry groups in Chesterfield, three were considered basic, or exporting compared to both the state and the region. The Electronic and Precision Equipment Repair and Maintenance Industry (8112) has an extremely strong presence for the county at both the regional and state levels, with a Location Quotient score of 2.11 for the regional comparison and 2.16 for the state comparison. The other basic industries were the Commercial and Industrial Machinery and Equipment Repair Industry (8113) and the Personal Care Services Industry (8121).

The Automotive Repair and Maintenance Industry (8111) has a stronger presence in the region. Whereas both the Drycleaning and Laundry Services (8123) and the Civic and Social Organizations (8134) have a strong presence for the county compared to the state employment level even though both were not considered basic at the regional level.

Two industries were considered non-basic or importing when compared to the region and the state. These are the Social Advocacy Organizations (8133) and the Business, Professional, Labor, Political and Similar Organizations (8139).

The Location Quotient analysis trend from 2006 to 2016 shows that this sector has consistently met local demands. It was gaining strength until it was at its strongest in 2009. Although this sector achieved its highest location quotient scores when compared to both the region and the state that year, it was not able to exceed the local demand to the extent that it could be enough to export goods and services or be considered a basic sector. The sector has been declining since then.



Shift Share Analysis

Employment in the Other Services sector in Chesterfield County grew faster than the overall average of the state economy. This sector added 645 jobs between 2006 and 2016. If this sector matched the overall growth rate, it would have only added 148 jobs. Chesterfield, overall, added more jobs than would be expected if the county matched the state in its overall growth rate between 2006-2016 by 9,926 jobs.

State Growth Share

Sector	2006 County Employment	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)
Other Services	3,973	3.72%	148	645
Countywide			3,717	13,643

Local conditions attributed to the realization of 299 jobs in the Other Services sector. This sector's employment rate in the County (16.2%) grew almost two times faster than the State's employment rate for this sector (8.7%) between 2006 and 2016. Chesterfield County, overall, is a highly competitive locality within the state, with local conditions contributing to 11,445 jobs above the state average.

Local Competitive Share

Sector	2006 County Employment	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Other Services	3,973	16.23%	8.70%	299
Countywide				11,445

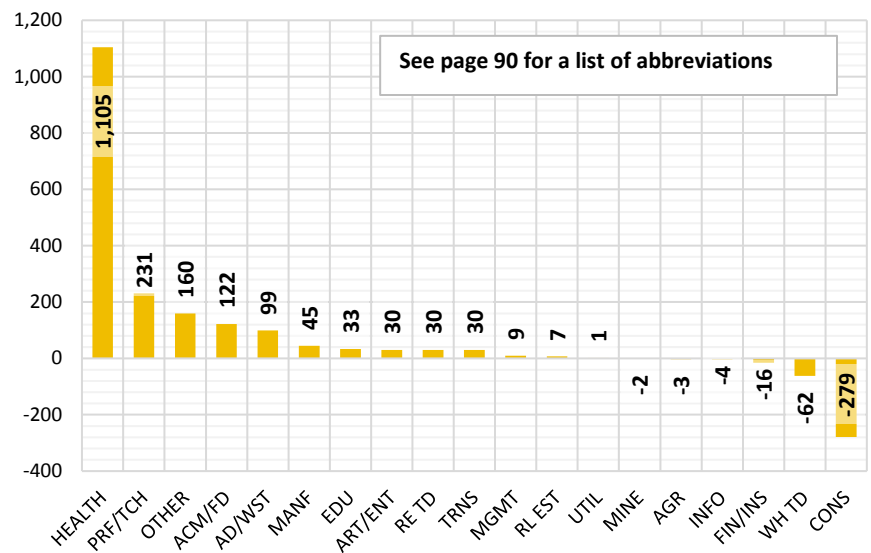
SUMMARY OF FINDINGS

Local conditions within Chesterfield have fostered a diverse economy which contains businesses within a variety of industries. Of the 19 sectors with available data, 13 sectors reported increases in number of establishments within the county for second quarter of 2006 to the second quarter of 2016, totaling to 1,902 additional establishments. Most significantly, the Health Care and Social Assistance sector reported an additional 1,105 establishments (an increase of 212.5% over 2006).

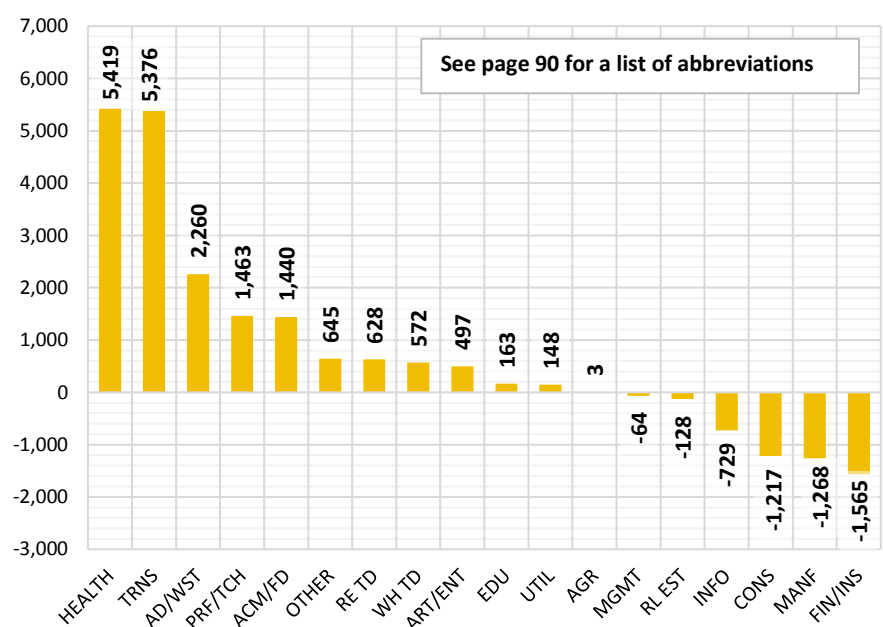
On the other hand, over the same period from 2006 to 2016, the county lost 366 establishments in six sectors. The sector reporting the most significant loss was the Construction sector, losing 279 establishments or a decrease of 24% over 2006.

Between the second quarter of 2006 and second quarter of 2016, private sector employment levels in Chesterfield County have increased for 12 of the 18 reportable sectors, adding 18,614 jobs. Most significantly, the Health Care and Social Services sector reported adding 5,419 employees. Whereas six sectors experienced job decline in the same period, losing a total of 4,971 jobs in the county. The top three sectors that reported the greatest loss were the Finance and Insurance sector (1,565 employees), the Manufacturing sector (1,268 employees) and the Construction sector (1,217 employees).

**Chesterfield County Establishments Change 2006-2016
(Private, select 2nd Quarters)**



**Chesterfield County Employment Change 2006-2016
(Private, select 2nd Quarters)**



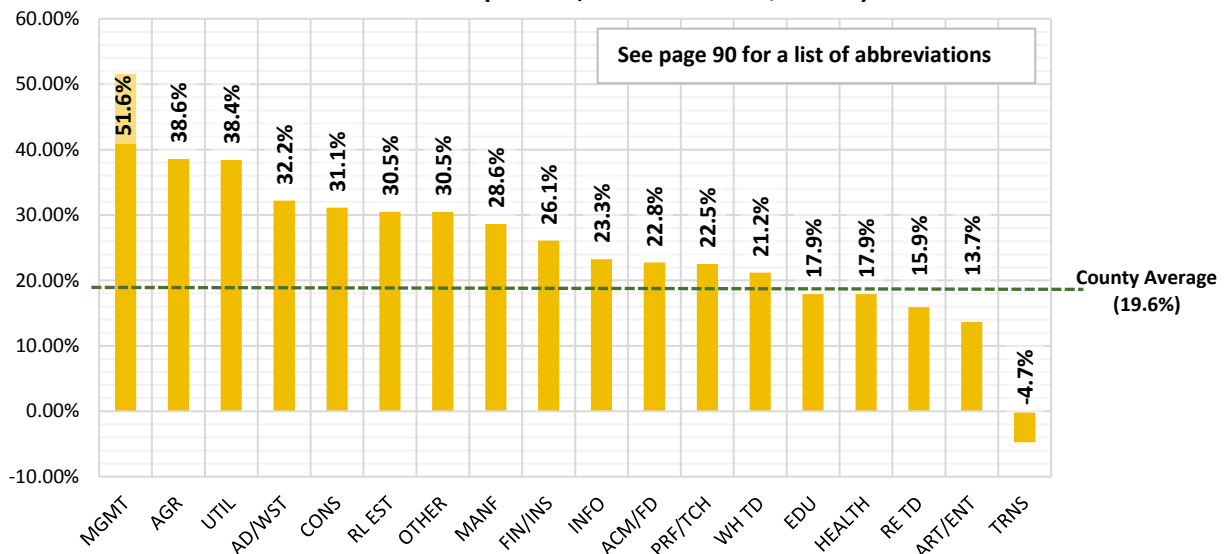
Top 15 Chesterfield Industries by Employment (Private), 2nd Quarter 2016

Rank 2016	Sector	NAICS	Industry	Employment	Establishments	Average Weekly Wage	Rank 2015
1	Accommodation & Food	7225	Restaurants and Other Eating Places	10,993	481	\$292	1
2	Retail Trade	4451	Grocery Stores	3,982	69	\$361	3
3	Administrative & Support	5613	Employment Services	3,483	97	\$538	4
4	Arts, Entertainment & Recreation	7139	Other Amusement and Recreation Industries	2,640	83	\$259	6
5	Health Care & Social Assistance	6221	General Medical and Surgical Hospitals	2,623	8	\$1,161	5
6	Administrative & Support	5614	Business Support Services	2,448	54	\$656	7
7	Retail Trade	4529	Other General Merchandise Stores	2,288	45	\$484	9
8	Retail Trade	4411	Automobile Dealers	2,273	74	\$1,005	10
9	Construction	2382	Building Equipment Contractors	2,254	213	\$1,047	8
10	Administrative & Support	5617	Services to Buildings and Dwellings	2,177	263	\$476	11
11	Health Care & Social Assistance	6211	Offices of Physicians	2,128	172	\$1,817	12
12	Professional, Scientific & Technical	5415	Computer Systems Design and Related Services	2,064	222	\$1,405	14
13	Health Care & Social Assistance	6241	Individual and Family Services	1,931	905	\$414	15
14	Professional, Scientific & Technical	5413	Architectural, Engineering, and Related Services	1,892	144	\$1,504	13
15	Transportation & Warehousing	4841	General Freight Trucking	1,836	64	\$983	16

Note: For reportable industries only; some data has been suppressed due to non-disclosure. The Top 2 ranked Industry Group in 2015, 2nd Quarter - "Warehousing and Storage – NAICS 4931" is not included in the 2016 report due to confidential information.

In terms of average weekly wage change between the second quarter of 2006 and the second quarter of 2016, the Management of Companies sector had the greatest increase with 51.6%. While the Transportation and Warehousing sector was the only sector in the County to have experienced a wage decline, with a 4.7% drop over 2006. Overall, the countywide average increase was 19.6% over 2006.

**Chesterfield County Average Weekly Wage Change
2006 - 2016 (Private, selected 2nd Quarters)**



Top 10 Chesterfield Industries by Average Weekly Wage (Private), 2nd Quarter 2016

Rank 2016	NAICS Code	Industry	Establishments	Employment	Average Weekly Wage
1	3254	Pharmaceutical and Medicine Manufacturing	3	8	\$2,653
2	4242	Drugs and Druggists' Sundries Merchant Wholesalers	15	133	\$2,418
3	4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	51	889	\$2,394
4	3324	Boiler, Tank, and Shipping Container Manufacturing	7	493	\$2,297
5	5611	Office Administrative Services	24	168	\$2,251
6	5239	Other Financial Investment Activities	53	183	\$2,240
7	5511	Management of Companies and Enterprises	66	1,257	\$2,213
8	6114	Business Schools and Computer and Management Training	12	39	\$2,083
9	3341	Computer and Peripheral Equipment Manufacturing	3	2	\$2,070
10	5111	Newspaper, Periodical, Book and Directory Publishers	12	71	\$1,880

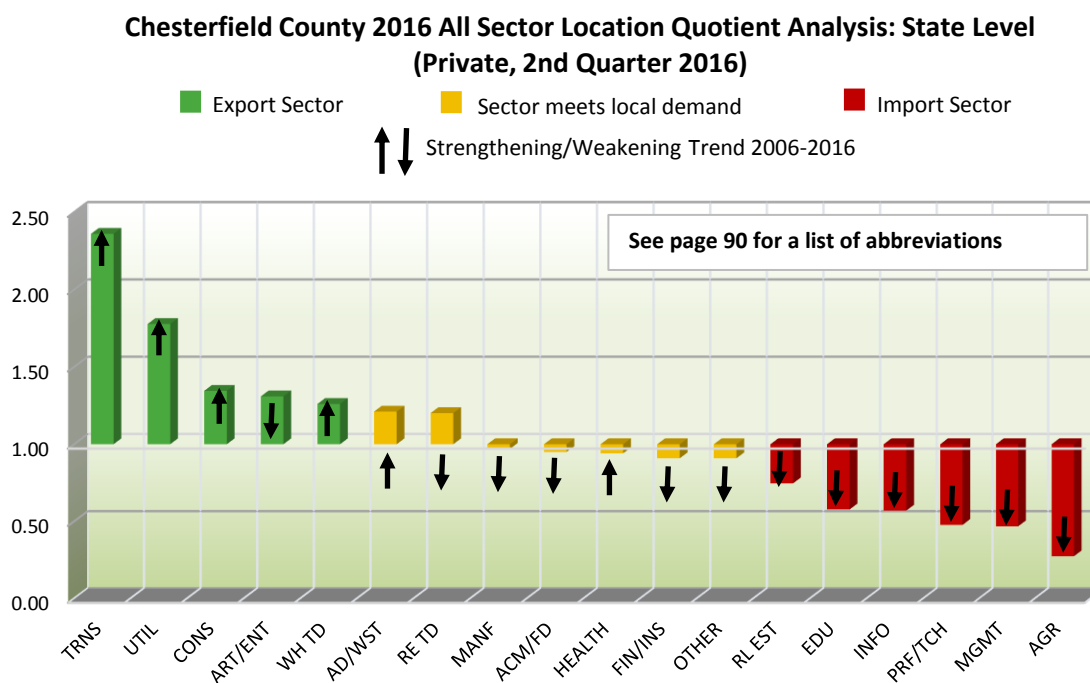
Location Quotient Analysis

State Analysis

Location quotient analysis of the Chesterfield County's businesses compared to Virginia employment numbers finds that there were five sectors making up the "base" of the local economy (24.5% of county employment). These were Transportation and Warehousing; Utilities; Construction; Arts, Entertainment and Recreation; and Wholesale Trade. The county "specializes" in these sectors as these sectors not only meet the local demand but also "export" goods and services to other areas.

Almost 62% of county employment fall within the seven sectors that were simply meeting the demands of the local population. These were Administrative & Support and Waste Management & Remediation Services; Retail Trade; Manufacturing; Accommodation and Food Services; Health Care and Social Assistance; Finance and Insurance; and Other Services.

The remaining eight reportable sectors (approximately 14% of county employment) were simply not strong enough in the county to meet the demands of even the local population. The goods offered and services rendered by these sectors must be met by businesses outside Chesterfield, therefore be "imported" from surrounding jurisdictions. These sectors were Real Estate and Rental & Leasing; Educational Services; Information; Professional and Technical Services; Management of Companies and Enterprises; and Agriculture, Forestry, Fishing and Hunting.



It should be noted, however, that industries within each sector may result in a different location quotient score than the sector it belongs to. It is almost certain that at least some of the goods or services, just not a significant amount, provided by these "import or non-basic" sectors were consumed outside of the locality.

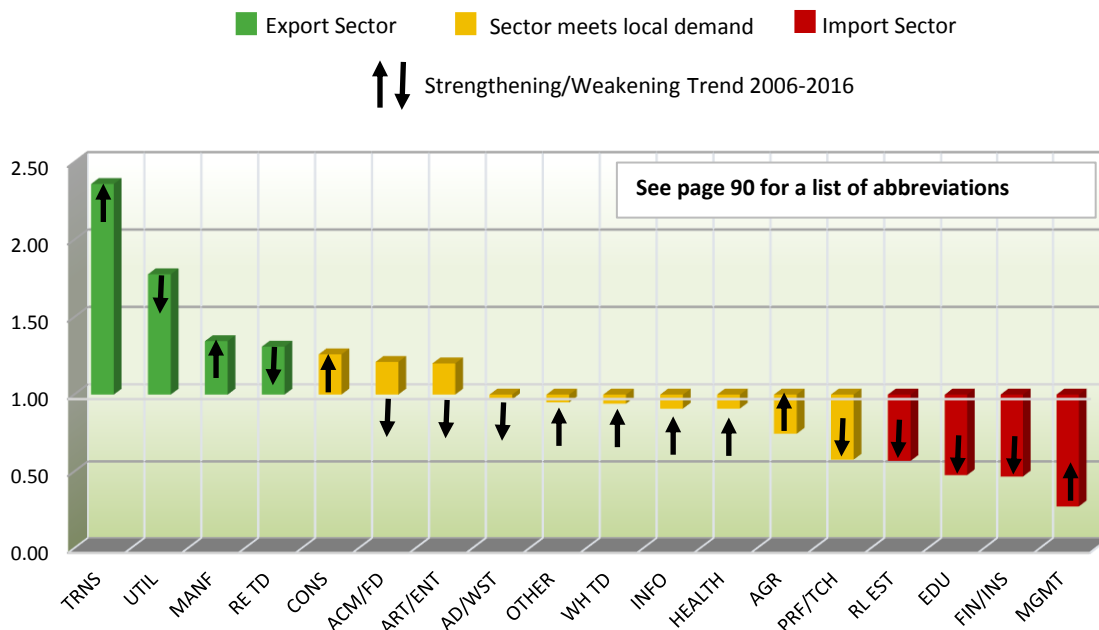
Richmond Region Analysis

Location quotient analysis of the Chesterfield County's businesses compared to the region finds that there were four sectors making up the "base" of the local economy, or 32.7% of the County jobs were basic. These were Transportation and Warehousing; Utilities; Manufacturing; and Retail Trade. In the context of the region, the sectors not only meet the needs of the local population but "export" goods and services to other areas as well. The county was considered to "specialize" in these basic sectors.

At the regional level, majority of the sectors are simply meeting the local demand. Ten out of the eighteen reportable sectors fall within this group. These were Construction; Accommodation and Food Services; Arts, Entertainment and Recreation; Administrative & Support and Waste Management & Remediation Services; Other Services; Wholesale Trade; Information; Health Care and Social Assistance; Agriculture, Forestry, Fishing and Hunting; and Professional and Technical Services. These sectors make up almost 60% of the county employment.

Generally, the four remaining sectors were not strong enough to meet the demands of the local population when compared to the region. These non-basic sectors "import" goods and services from outside the county and other surrounding areas. These sectors, Real Estate; Educational Services; Finance and Insurance; and Management of Companies and Enterprises, make up 7.5% of the county employment. It should be noted, however, that this may not be true of all industries within a particular sector. In addition, it is almost certain that at least some of the products of these 'import' sectors are consumed outside of the locality – just not a significant amount.

Chesterfield County 2016 All Sector Location Quotient Analysis: Regional Level (Private, 2nd Quarter 2016)



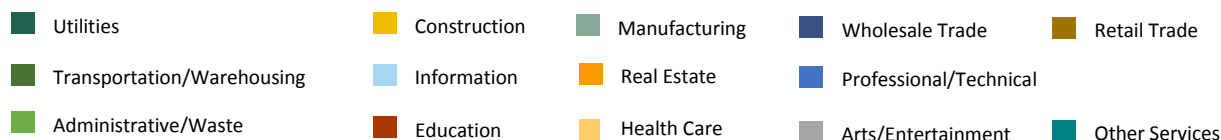
We identified two sectors that were consistently basic upon conducting the Location Quotient Analysis of Chesterfield County for the State and the Regional Levels. These were the Utilities and the Transportation & Warehousing sectors. Having higher employment concentration in these sectors suggest specialization

and ability to export goods and services to surrounding areas, thus strengthening the county's economic base.

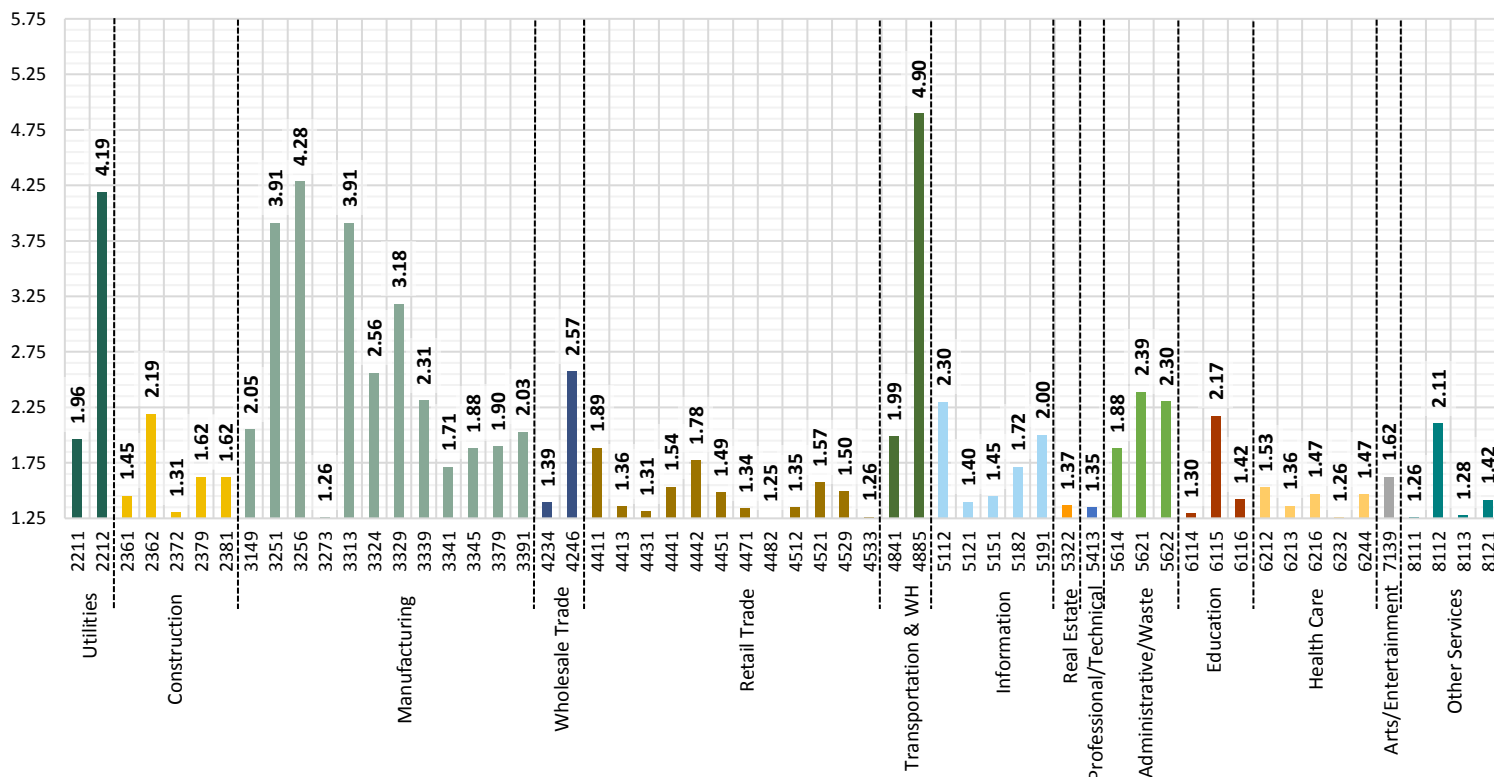
On the other hand, there were three sectors that garnered low location quotient scores, making these non-basic or importing sectors for the County. Real Estate, Management of Companies and Educational Services, when compared to both the employment levels at the state and the region, show that the County did not have sufficient employment or jobs to specialize in these sectors and to meet the demands of the local population.

Looking at the specific industries within the sectors, there were 58 reportable industry groups (NAICS 4digit) that specialize in the County upon receiving an LQ score of 1.25 or more when compared to the region. The following chart shows these industries, falling within fourteen sectors, that make up the county's economic base. This indicates that Chesterfield's economic base is a wide range of industries. Approximately 42% of the County's basic industries fall under Manufacturing or Retail Trade, as each sector has 12 industries considered basic. The succeeding table lists the industry groups according to LQ score received. In the Appendix Section, the employment numbers and average weekly wage of these basic industries is illustrated in a graph (see Appendix 1).

Industrial Groups of Chesterfield's Economic Base



**Richmond Region Location Quotients: Industrial Groups of Chesterfield's Economic Base
(Private, 2nd Quarter 2016)**



Rank Order of Industries by Strength

1	4885	Freight Transportation Arrangement	30	2381	Foundation, Structure, and Building Exterior Contractors
2	3256	Soap, Cleaning Compound, and Toilet Preparation	31	4521	Department Stores
3	2212	Natural Gas Distribution	32	4441	Building Material and Supplies Dealers
4	3251	Basic Chemical Manufacturing	33	6212	Offices of Dentists
5	3313	Alumina and Aluminum Production and Processing	34	4529	Other General Merchandise Stores
6	3329	Other Fabricated Metal Product Manufacturing	35	4451	Grocery Stores
7	4246	Chemical and Allied Products Merchant Wholesalers	36	6216	Home Health Care Services
8	3324	Boiler, Tank, and Shipping Container Manufacturing	37	6244	Child Day Care Services
9	5621	Waste Collection	38	2361	Residential Building Construction
10	3339	Other General Purpose Machinery Manufacturing	39	5151	Radio and Television Broadcasting
11	5622	Waste Treatment and Disposal	40	6116	Other Schools and Instruction
12	5112	Software Publishers	41	8121	Personal Care Services
13	2362	Nonresidential Building Construction	42	5121	Motion Picture and Video Industries
14	6115	Technical and Trade Schools	43	4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
15	8112	Electronic and Precision Equipment Repair and Maintenance	44	5322	Consumer Goods Rental
16	3149	Other Textile Product Mills	45	6213	Offices of Other Health Practitioners
17	3391	Medical Equipment and Supplies Manufacturing	46	4413	Automotive Parts, Accessories, and Tire Stores
18	5191	Other Information Services	47	5413	Architectural, Engineering, and Related Services
19	4841	General Freight Trucking	48	4512	Book Stores and News Dealers
20	2211	Electric Power Generation, Transmission and Distribution	49	4471	Gasoline Stations
21	3379	Other Furniture Related Product Manufacturing	50	4431	Electronics and Appliance Stores
22	4411	Automobile Dealers	51	2372	Land Subdivision
23	3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	52	6114	Business Schools and Computer and Management Training
24	5614	Business Support Services	53	8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
25	4442	Lawn and Garden Equipment and Supplies Stores	54	4533	Used Merchandise Stores
26	5182	Data Processing, Hosting, and Related Services	55	6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities
27	3341	Computer and Peripheral Equipment Manufacturing	56	3273	Cement and Concrete Product Manufacturing
28	7139	Other Amusement and Recreation Industries	57	8111	Automotive Repair and Maintenance
29	2379	Other Heavy and Civil Engineering Construction	58	4482	Shoe Stores

Shift Share Analysis

Shift Share helps determine what caused the change in employment in various sectors of the local economy by comparing it with change in the broader state economy, as a result, presenting which sectors are “out-performing” or “under-competing”, in this report, the state. However, Shift Share Analysis does not answer why the sectors are competitive. Shift Share is broken down into three components: State Growth share, Industrial Mix share, and Local Competitive share.

The first component of the Shift Share Analysis is the State Growth Effect. This effect explains the degree to which local sectoral employment changed dependent on the overall condition of the state economy. Employment numbers are expected to grow if the overall state economy is growing. However, there could also be deviations in the local economy and it does not usually follow the same pace of growth or decline compared to the state average for all sectors.

Chesterfield County - State Growth Share

Sector	2006 County Employment (Private)	State Overall Employment Growth Rate (2006-2016)	Growth Expected if Sector Matched State Overall Employment Growth (2006-2016)	Actual Change in Employment (2006-2016)	Difference between Actual and Expected Employment
Agriculture (11)	128	3.72%	5	3	-2
Utilities (23)	560		21	148	127
Construction (23)	10,543		392	-1,217	-1,609
Manufacturing (31-33)	9,502		353	-1,268	-1,621
Wholesale Trade (42)	4,563		170	572	402
Retail Trade (44-45)	17,789		662	628	-34
Transportation & WH (48-49)	4,372		163	5,376	5,213
Information (51)	2,152		80	-729	-809
Finance & Insurance (52)	6,057		225	-1,565	-1,790
Real Estate (53)	1,586		59	-128	-187
Professional/Technical (54)	5,701		212	1,463	1,251
Management of Comp. (55)	1,321		49	-64	-113
Administrative & Waste (56)	7,961		296	2,260	1,964
Educational Services (61)	1,193		44	163	119
Health Care (62)	9,430		351	5,419	5,068
Arts, Ent., Recreation (71)	2,368		88	497	409
Accommodation & Food (72)	10,730		399	1,440	1,041
Other Services (81)	3,973		148	645	497
County State Growth Share			3,717	13,643	9,926

Had the county’s industries matched the state’s pace in employment, Chesterfield would have added 3,717 jobs between 2006 and 2016. Instead, the county added 13,643 jobs or a positive difference of

9,926 jobs. Ten out of the eighteen reportable sectors indicate that the County grew faster than the overall state average. These sectors were: Utilities; Wholesale Trade; Transportation and Warehousing; Professional and Technical Services; Administrative & Support and Waste Management & Remediation Services; Educational Services; Health Care; Arts, Entertainment and Recreation; Accommodation and Food Services; and Other Services. Most significantly, the Transportation & Warehousing sector and the Health Care sector grew fastest and added the most jobs while the Finance & Insurance sector grew least.

The second component in the Shift Share Analysis is the County's Industrial Mix Share. This component represents the share of local sector growth based on that sector's growth at the state level. To calculate this, the State Overall Employment Growth Rate is subtracted from the State Growth Rate for the specific sector. This growth percentage is applied to the locality's jobs in that sector. The resulting Industrial Mix Share indicates how the county's unique mix of industries accounted for employment change. A positive value indicates that the sector's industries are concentrated in high-growth businesses compared to the state. Negative values, on the other hand, indicate that the sector's industries are concentrated in slow-growing or declining businesses compared to the state.

Chesterfield County - Industrial Mix Share

Sector	2006 County Employment (Private)	Sector's State Employment Growth Rate (2006-2016)	State Overall Employment Growth Rate (2006-2016)	Industrial Mix Share
Agriculture (11)	128	4.97%	3.72%	2
Utilities (23)	560	-0.15%		-22
Construction (23)	10,543	-25.48%		-3,079
Manufacturing (31-33)	9,502	-20.51%		-2,303
Wholesale Trade (42)	4,563	-7.89%		-530
Retail Trade (44-45)	17,789	-0.90%		-821
Transportation & WH (48-49)	4,372	9.48%		252
Information (51)	2,152	-25.71%		-633
Finance & Insurance (52)	6,057	0.08%		-220
Real Estate (53)	1,586	-10.05%		-218
Professional/Technical (54)	5,701	18.39%		836
Management of Comp. (55)	1,321	-2.88%		-87
Administrative & Waste (56)	7,961	8.79%		404
Educational Services (61)	1,193	21.61%		213
Health Care (62)	9,430	31.98%		2,665
Arts, Ent., Recreation (71)	2,368	19.79%		381
Accommodation & Food (72)	10,730	17.18%		1,444
Other Services (81)	3,973	8.70%		198
County's Industrial Mix Share				-1,519

Chesterfield has 1,519 jobs less than what it would have if its industrial mix was the same as the state average. This negative value can be viewed meaning that the county's mix of businesses was concentrated

in declining or slow-growing sectors compared to the state. However, nine (half of the reportable sectors), were in sectors growing faster than expected had they mirrored the state overall employment rate. These were: Agriculture; Transportation and Warehousing; Professional and Technical Services; Administrative & Support and Waste Management & Remediation Services; Educational Services; Health Care Services; Arts, Entertainment and Recreation; Accommodation and Food Services; and Other Services.

Most significantly, the Health Care sector added 2,665 more jobs than predicted based on the sector's state overall and sector employment growth rate. The most significant deficit occurred in the Construction sector and the Manufacturing sector, resulting in a combined 5,382 fewer jobs than expected had these sectors reflected changes occurring at the state level.

The third measure in the analysis is the Local Competitive Share. This share reveals how many jobs were created in the local economy due to the nature of the local business environment, reflective of the degree to which the local business climate has influenced either the decline or growth of employment overall, independent of fluctuations at the state level. Because of that, this is considered the most important of the three shares since it accounts for local jobs "saved or created" despite declining state employment trends.

Chesterfield County - Local Competitive Share

Sector	2006 County Employment (Private)	Sector's County Employment Growth Rate (2006-2016)	Sector's State Employment Growth Rate (2006-2016)	Local Competitive Share
Agriculture (11)	128	2.34%	4.97%	-3
Utilities (23)	560	26.43%	-0.15%	149
Construction (23)	10,543	-11.54%	-25.48%	1,470
Manufacturing (31-33)	9,502	-13.34%	-20.51%	681
Wholesale Trade (42)	4,563	12.54%	-7.89%	932
Retail Trade (44-45)	17,789	3.53%	-0.90%	788
Transportation & WH (48-49)	4,372	122.96%	9.48%	4,961
Information (51)	2,152	-33.88%	-25.71%	-176
Finance & Insurance (52)	6,057	-25.84%	0.08%	-1,570
Real Estate (53)	1,586	-8.07%	-10.05%	31
Professional/Technical (54)	5,701	25.66%	18.39%	415
Management of Comp. (55)	1,321	-4.84%	-2.88%	-26
Administrative & Waste (56)	7,961	28.39%	8.79%	1,560
Educational Services (61)	1,193	13.66%	21.61%	-95
Health Care (62)	9,430	57.47%	31.98%	2,403
Arts, Ent., Recreation (71)	2,368	20.99%	19.79%	28
Accommodation & Food (72)	10,730	13.42%	17.18%	-403
Other Services (81)	3,973	16.23%	8.70%	299
<i>County's Local Competitive Share</i>				<i>11,445</i>

Simply, this indicator measures how many jobs are attributable to the relative competitive position of Chesterfield's business environment. This productive advantage (or disadvantage) can come from a variety of factors, namely technology, management, worker productivity/efficiency, market access and demographics, among a few. Between 2006 and 2016, the overall competitiveness of the county's businesses, within the context of the state, attributed to the creation of 11,445 jobs. Chesterfield's competitive sectors were: Utilities; Construction; Manufacturing; Wholesale Trade; Retail Trade; Transportation and Warehousing; Real Estate; Professional and Technical Services; Administrative & Support and Waste Management & Remediation Services; Health Care Services; and Other Services.

Summary

Both the Location Quotient Analysis and Shift Share Analysis highlights what is unique in a locality's economy. The Location Quotient Analysis uses the total jobs in a sector or an industry while the Shift Share Analysis uses job growth to determine a place's competitive advantages or disadvantages. The tables and graphs in this report provide an insight into the relative strengths of Chesterfield's economic base.

2-Digit NAICS Level Industries	Location Quotient		Shift Share Effects			
	State	Region	State Growth (Expected)	Job Difference (Actual Employment less Expected State Growth)	Industrial Mix	Local Competitive
11-Agriculture, Forestry, Fishing and Hunting	0.27 ↓	0.80 ↑	5	-2	2	-3
22-Utilities	1.78 ↑	2.00 ↓	21	127	-22	149
23-Construction	1.35 ↑	1.20 ↑	392	-1,609	-3,079	1,470
31-33 Manufacture	0.97 ↓	1.33 ↑	353	-1,621	-2,303	681
42-Wholesale Trade	1.26 ↑	0.94 ↑	170	402	-530	932
44-45 Retail Trade	1.20 ↓	1.30 ↓	662	-34	-821	788
48-49 Transportation and Warehousing	2.36 ↑	2.23 ↑	163	5,213	252	4,961
51-Information	0.57 ↓	0.88 ↑	80	-809	-633	-176
52-Finance and Insurance	0.91 ↓	0.50 ↓	225	-1,790	-220	-1,570
53-Real Estate, Rental and Leasing	0.75 ↓	0.74 ↓	59	-187	-218	31
54-Professional, Scientific, and Technical Services	0.48 ↓	0.79 ↓	212	1,251	836	415
55-Management of Companies and Enterprises	0.47 ↓	0.24 ↑	49	-113	-87	-26
56-Administrative and Support and Waste Management and Remediation Services	1.21 ↑	1.02 ↓	296	1,964	404	1,560
61-Educational Services	0.58 ↓	0.69 ↓	44	119	213	-95
62-Health Care and Social Assistance	0.94 ↑	0.84 ↑	351	5,068	2,665	2,403
71-Arts, Entertainment and Recreation	1.31 ↓	1.05 ↓	88	409	381	28
72-Accommodation and Food Services	0.95 ↓	1.09 ↓	399	1,041	1,444	-403
81-Other Services	0.91 ↓	1.00 ↑	148	497	198	299
TOTAL			3,717	9,926	-1,519	11,445

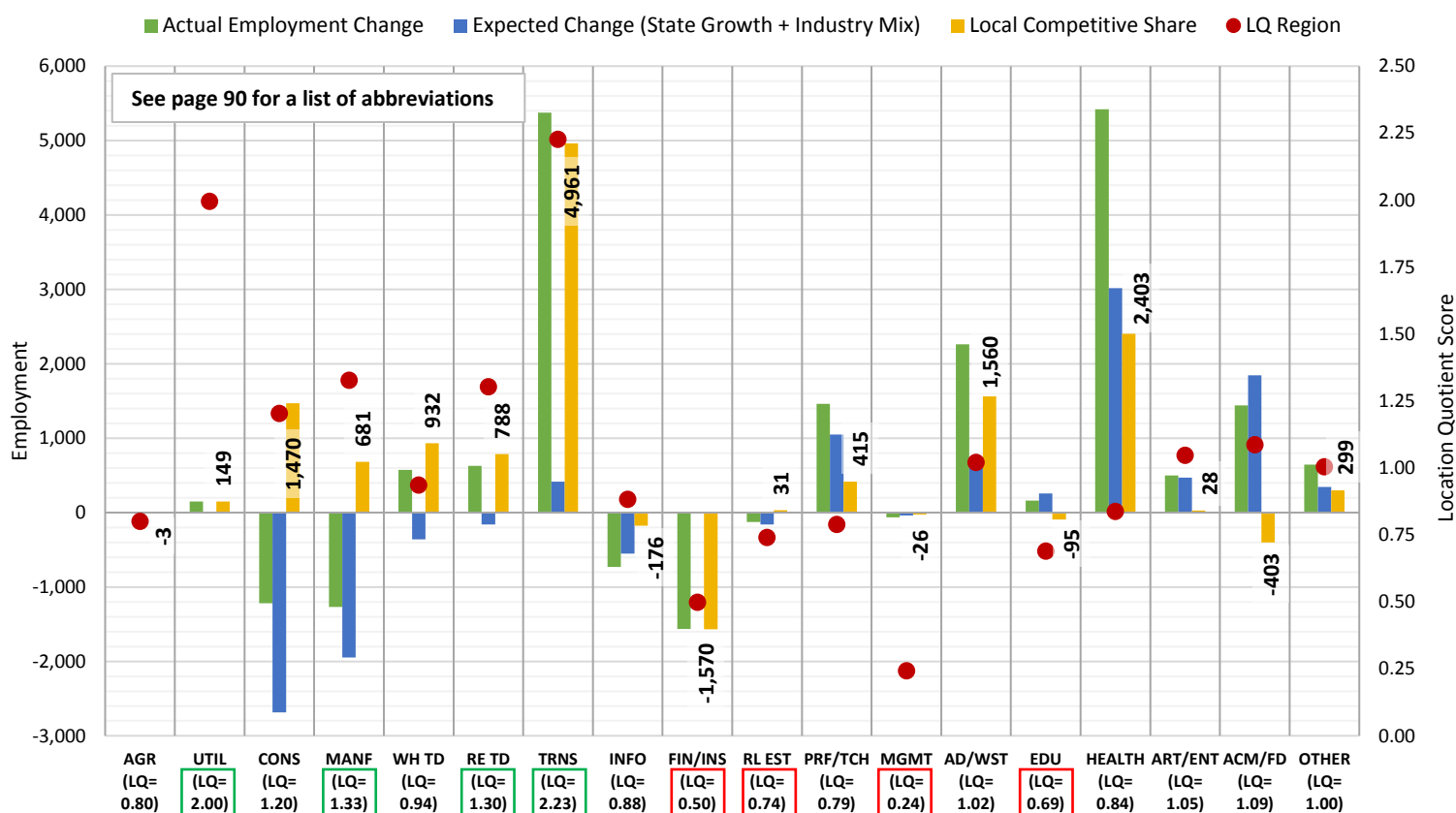
Note: LQ>1.25 (Indicating Basic Industry) highlighted in green with red font
0.75 < LQ < 1.25 (Indicating Industry meeting local demand) highlighted in yellow
LQ < 0.75 (Indicating Non-Basic Industry) highlighted in red

Shift Share - positive employment in green
Shift Share - negative employment in red

Overall, the Transportation and Warehousing sector leads the County in both Location Quotient and Shift Share Analysis. It is the only sector that is basic when compared to both the region and the state. It is also the only sector that outperformed the state in all the three components of the Shift Share Analysis.

All the other basic or exporting sectors at the regional context were also locally competitive in the Shift Share Analysis. These sectors were Utilities, Manufacturing and Retail Trade. As seen in the combined Regional Level Location Quotient and Simplified Shift Share graph below, all these four basic sectors present a strong local competitive advantage (yellow bars) despite the declining rate at the state level as indicated by the blue bars. The blue bar represents the combined State Growth and Industrial Mix shares that were influenced by the state's employment rate.

**Regional Level Location Quotient and Simplified Shift Share Analysis: Chesterfield County
(Private, selected 2nd Quarters 2006-2016)**



Note: LQ scores in green boxes – basic sector; LQ scores in red boxes – non-basic sector; the rest meets the needs of the local population

Other sectors that present a strong local advantage were the Construction, the Wholesale Trade and the Administrative & Waste Services sector. The sectors in the Regional Location Quotient analysis meet local demands. However, Shift Share Analysis shows that despite the slow or declining employment rate at the state level, the County stemmed job loss as shown in the positive employment numbers in the Local Competitive Share, presenting a local advantage that can be further considered and fostered. This is the same as the Real Estate sector. It may be considered a non-basic sector in the Location Quotient Analysis, meaning the employment of this sector is low in proportion when compared to regional numbers, but Real Estate in the Shift Share Analysis shows it is growing in the County despite the state's negative trend.

The Professional and Technical Services sector; Health Care and Social Assistance sector; Arts, Entertainment and Recreation sector; and Other Services sector also show positive and growing employment numbers but the Local Competitive share is lower when compared to the combined State Growth and Industrial Mix shares combined (the Expected Change numbers or blue bars in the graph). Specifically, it is the Industrial Mix share that explains the positive employment numbers in these sectors, meaning that these are high growth sectors in the state level which impacts the county positively and that local conditions or factors may have smaller effect or minimal influence in job growth.

On the other hand, the Information sector and the Management of Companies sector show negative employment numbers. First, this means that the county used to have jobs in these sectors that were lost in the period between 2006 and 2016 (seen in green bars representing actual employment change). On top of that, the Management sector (the sector which offers the highest average weekly wage but has the lowest Location Quotient score in the County) and the Information Sector (a sector that currently meets the local population's demands) are continuously weakening and losing its presence locally.

The remaining sectors, Agriculture, Forestry, Fishing and Hunting; Finance and Insurance; Educational Services; and Accommodation and Food Services, present employment numbers signifying local disadvantage for the County. These sectors were growing on a faster rate at the state level. As seen on the graph, the combined State Growth and Industrial Mix shares has positive employment numbers yet the locality is losing jobs in these sectors. What causes this disadvantage can be further explored and studied to mitigate and improve the county's chances at being competitive in these sectors as well. It is to be noted that the Educational Services numbers used in this report only reflect the private sector industries that were to supplement Chesterfield County's public school system.

Focusing on the Local Competitive Component in employment shares, sectors presenting the highest positive change and possessing a strong presence and advantage in the County are Transportation and Warehousing (+4,961 jobs), Health Care and Social Assistance (+2,403 jobs), Administrative and Waste Services (+1,560) and Construction (+1,470 jobs). On the other hand, sectors that are weakening are Finance and Insurance (-1,570 jobs) and Accommodations and Food Services (-403 jobs).

With the Location Quotient and Shift Share Analyses, the County's sectors were identified whether they are currently outperforming or under-competing compared to the employment numbers and job growth of the region and the state. Through this, local competitiveness can be maintained or strengthened by identifying which sectors required additional resources or workforce reinforcement. The County can attract businesses that are growing, capitalizing on the local advantages the County offers. Also, with the identification of declining or at-risk sectors, the County can offer assistance to address these concerns and determine a plan of action on how to approach such trend.

Overall, the County remains a highly competitive business environment. With thorough and careful consideration of the results in this report, Chesterfield can continue to enhance its competitive advantage at both the regional and state levels.

DATA SOURCES & METHODOLOGY

Virginia Labor Market Information (LMI) <https://data.virginialmi.com>

- Data for employment, establishment, wage figures, top employers

North American Industrial Classification System (NAICS) Desk Aid, United States 2002 and Class Codes
<https://classcodes.com/naics-4-digit-industry-group-code-list/>

- NAICS code structure, industry identification

United States Census Bureau <https://www.census.gov/eos/www/naics/>

- NAICS sector level definitions and descriptions

U. S. Department of Commerce Bureau of Economic Analysis <https://www.bea.gov/faq/>

- Location Quotient definition

Pennsylvania State University, College of Agricultural Sciences www.cas.psu.edu

“Understanding Economic Change in Your Community”, Pennsylvania State University, 2003.
(Shift-Share Analysis descriptions)

Economic Modeling Specialists International (“Emsi)

<http://www.economicmodeling.com/2011/12/05/understanding-shift-share-2/>

Sentz, Rob. “Understanding Shift Share”, Emsi, 5 December 2011

NAICS sectors, with the abbreviations used in this report:

Abbreviation	Sector
AGR	Agriculture, forestry, fishing and hunting
MINE	Mining
UTIL	Utilities
CONS	Construction
MANF	Manufacturing
WH TD	Wholesale trade
RE TD	Retail trade
TRNS	Transportation and warehousing
INFO	Information
FIN/INS	Finance and insurance
RL EST	Real estate and rental and leasing
PRF/TCH	Professional and technical services
MGMT	Management of companies and enterprises
AD/WST	Administrative and waste services
EDU	Educational services
HEALTH	Health care and social assistance
ART/ENT	Arts, entertainment and recreation
ACM/FD	Accommodation and food services
OTHER	Other services, except public administration (Government)

Top Industries by Employment (Private)

This section of the report utilized the 4-digit industry group level data from NAICS when available. Industries at this level that have less than three establishments, or where a single business comprises 80

percent of that industry's employment, are not reported. All data in this report is for private enterprises; federal, state, and local firms are not included in this report.

NAICS Structure

First 2 Digits:	Sector	51 Information
Third Digit:	Sub-Sector	515 Broadcasting, Except Internet
Fourth Digit:	Industry Group	5151 Radio and Television Broadcasting
Fifth Digit:	NAICS Industry	51511 Radio Broadcasting
Sixth Digit:	U.S. Industry	515111 Radio Networks

Location Quotients

Location quotient analysis is but one way of measuring a local economy. This analysis reveals how strong a particular sector is through its employment relative to the county as a whole. This is directly compared to the same measurement at the state level (the national level can be used as well). These two percentages are then divided against each other. The result will show that: 1) the local economy has a higher percentage of workers in a particular industry than the state average, or; 2) the local economy has roughly the same percentage of workers in a particular industry compared to the state, or; 3) the locality has less workers employed in a particular industry than the state average. The number '1' represents a percentage equal to the state, with a value above '1' meaning the local economy has 'extra' workers in a given sector. For this report, a value greater than 1.25 defines a basic industry, a value between 0.75 and 1.25 an industry that meets the local demand, and below 0.75 are industries where demand is met mainly by businesses outside of the locality (non-basic). A basic industry is taken to mean that this industry must be providing at least some of its goods and/or services to populations outside of the local economy, and bringing those outside sales dollars back into the county, providing the base of the local economy. Non-basic industries are not strong enough to even supply the local population, and that at least a portion of the goods and/or services from these industries must be provided to the local population by sources and businesses outside of the locality. Thus, these industries must 'import' goods and/or services to serve the local population.

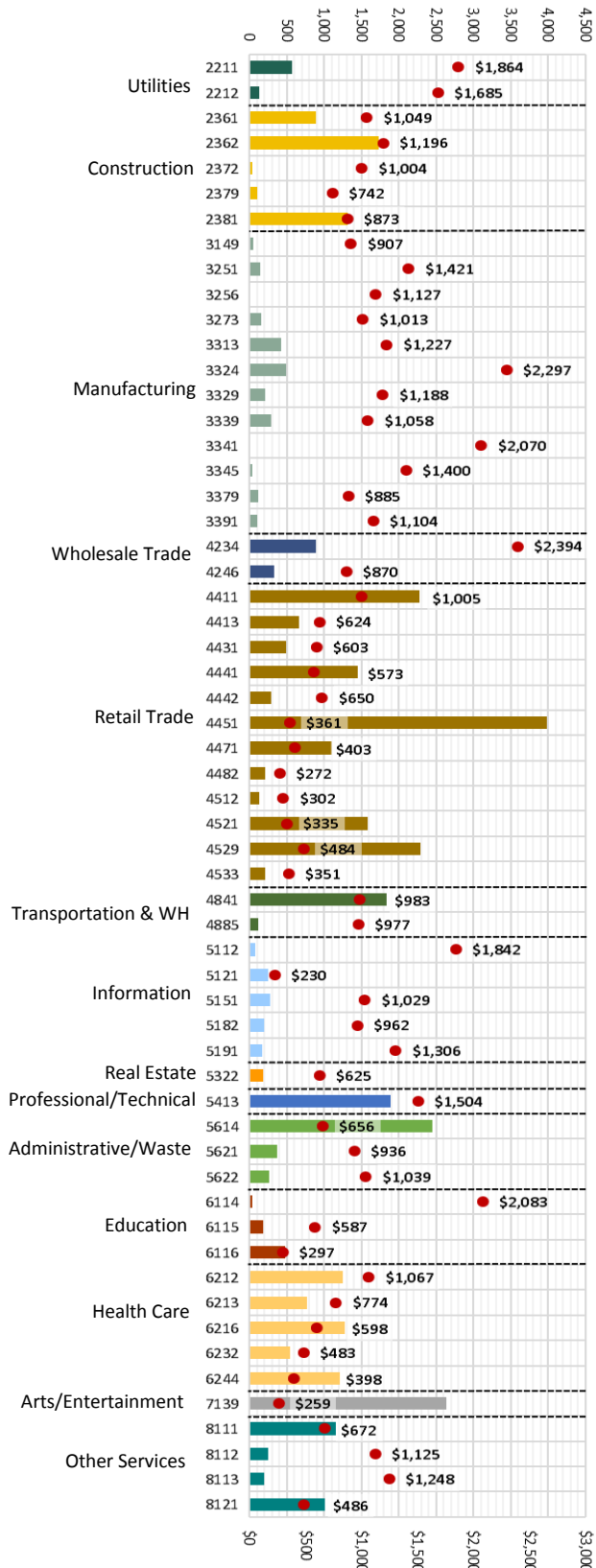
Shift-Share Analysis

This analysis attempts to account for the changes in a sector's employment over a given time. The technique distributes the employment change among three contributing factors: change attributable to growth of the state economy; change attributable to the local economy's mix of faster or slower than average growing industries (compared to the state); and change due to the competitiveness of the local industries. The analysis compares the local economy with the state economy, to determine whether the local economy has witnessed a faster or slower change in employment than the state economy has observed. This tool is descriptive, not diagnostic, of the change in local employment, it does not answer the question why?.

For More Information

Any questions regarding the information found in this report, or about the report itself, can be answered by Steven Haasch in the Comprehensive Planning & Research Team of the Chesterfield County Planning Department by calling (804) 796-7192, or through email at haaschs@chesterfield.gov.

APPENDIX



Appendix 1: Employment & Average Weekly Wage: Chesterfield's Economic Base by Industrial Groups (Private, 2nd Quarter 2016)

2211	Electric Power Generation, Transmission and Distribution
2212	Natural Gas Distribution
2361	Residential Building Construction
2362	Nonresidential Building Construction
2372	Land Subdivision
2379	Other Heavy and Civil Engineering Construction
2381	Foundation, Structure, and Building Exterior Contractors
3149	Other Textile Product Mills
3251	Basic Chemical Manufacturing
3256	Soap, Cleaning Compound, and Toilet Preparation
3273	Cement and Concrete Product Manufacturing
3313	Alumina and Aluminum Production and Processing
3324	Boiler, Tank, and Shipping Container Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3339	Other General Purpose Machinery Manufacturing
3341	Computer and Peripheral Equipment Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3379	Other Furniture Related Product Manufacturing
3391	Medical Equipment and Supplies Manufacturing
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
4246	Chemical and Allied Products Merchant Wholesalers
4411	Automobile Dealers
4413	Automotive Parts, Accessories, and Tire Stores
4431	Electronics and Appliance Stores
4441	Building Material and Supplies Dealers
4442	Lawn and Garden Equipment and Supplies Stores
4451	Grocery Stores
4471	Gasoline Stations
4482	Shoe Stores
4512	Book Stores and News Dealers
4521	Department Stores
4529	Other General Merchandise Stores
4533	Used Merchandise Stores
4841	General Freight Trucking
4885	Freight Transportation Arrangement
5112	Software Publishers
5121	Motion Picture and Video Industries
5151	Radio and Television Broadcasting
5182	Data Processing, Hosting, and Related Services
5191	Other Information Services
5322	Consumer Goods Rental
5413	Architectural, Engineering, and Related Services
5614	Business Support Services
5621	Waste Collection
5622	Waste Treatment and Disposal
6114	Business Schools and Computer and Management Training
6115	Technical and Trade Schools
6116	Other Schools and Instruction
6212	Offices of Dentists
6213	Offices of Other Health Practitioners
6216	Home Health Care Services
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities
6244	Child Day Care Services
7139	Other Amusement and Recreation Industries
8111	Automotive Repair and Maintenance
8112	Electronic and Precision Equipment Repair and Maintenance
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
8121	Personal Care Services

Appendix 2: Shift Share Analysis Table

2-Digit NAICS Level Industries	Chesterfield County, Virginia				Virginia			Shares						
	Employment 2006	Employment 2016	Employment Change (R)	County Percent Change (2006 to 2016)	State Employment		State Percent change	State growth rate	State Growth Share (N)	Actual less Expected (R less N)	Industry Deviation (State less County Percent Change)	Industry Mix Share (M)	Local Share (S)	
					2006	2016								
11-Agriculture, Forestry, Fishing and Hunting	128	131	3	2.344%	12,378	12,993	4.97%	3.72%	5	-2	0.012	2	-3	
22-Utilities	560	708	148	26.429%	10,826	10,810	-0.15%		21	127	-0.039	-22	149	
23-Construction	10,543	9,326	-1,217	-11.543%	252,488	188,142	-25.48%		392	-1,609	-0.292	-3,079	1,470	
31-31-33 Manufacture	9,502	8,234	-1,268	-13.345%	289,942	230,462	-20.51%		353	-1,621	-0.242	-2,303	681	
42-Wholesale Trade	4,563	5,135	572	12.536%	120,071	110,595	-7.89%		170	402	-0.116	-530	932	
44-45 Retail Trade	17,789	18,417	628	3.530%	419,757	415,989	-0.90%		662	-34	-0.046	-821	788	
48-49 Transportation and Warehousing	4,372	9,748	5,376	122.964%	102,343	112,047	9.48%		163	5,213	0.058	252	4,961	
51-Information	2,152	1,423	-729	-33.875%	91,198	67,750	-25.71%		80	-809	-0.294	-633	-176	
52-Finance and Insurance	6,057	4,492	-1,565	-25.838%	134,022	134,132	0.08%		225	-1,790	-0.036	-220	-1,570	
53-Real Estate, Rental and Leasing	1,586	1,458	-128	-8.071%	58,927	53,003	-10.05%		59	-187	-0.138	-218	31	
54-Professional, Scientific, and Technical Services	5,701	7,164	1,463	25.662%	344,321	407,632	18.39%		212	1,251	0.147	836	415	
55-Management of Companies and Enterprises	1,321	1,257	-64	-4.845%	75,044	72,882	-2.88%		49	-113	-0.066	-87	-26	
56-Administrative and Support and Waste Management and Remediation Services	7,961	10,221	2,260	28.388%	210,549	229,060	8.79%		296	1,964	0.051	404	1,560	
61-Educational Services	1,193	1,356	163	13.663%	52,386	63,704	21.61%		44	119	0.179	213	-95	
62-Health Care and Social Assistance	9,430	14,849	5,419	57.466%	324,380	428,132	31.98%		351	5,068	0.283	2,665	2,403	
71-Arts, Entertainment and Recreation	2,368	2,865	497	20.988%	49,571	59,381	19.79%		88	409	0.161	381	28	
72-Accommodation and Food Services	10,730	12,170	1,440	13.420%	296,804	347,791	17.18%		399	1,041	0.135	1,444	-403	
81-Other Services	3,973	4,618	645	16.235%	126,877	137,918	8.70%		148	497	0.050	198	299	
Total	99,929	113,572	13,643	13.653%	2,971,884	3,082,423	3.72%		3,717	9,926			-1,519	11,445